St. Petersburg University
Graduate School of Management
Master in Management Program

BUSINESS MODEL TRANSFORMATION OF FULL-SERVICE AIRLINES: ANCILLARY OPPORTUNITY

Master's Thesis by the 2nd year student
Concentration — Master in Management
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St. Petersburg
2020

АННОТАЦИЯ

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Название ВКР	Трансформация бизнес-модели традиционных авиаперевозчиков: развитие неавиационных доходов
Образовательная программа	Менеджмент
Направление подготовки	Менеджмент
Год	2020
Научный руководитель	Зятчин Андрей Васильевич
Описание цели, задач и основных результатов	**Цель данного исследования:** выявить значимые факторы, влияющие на поведенческое намерение приобрести дополнительные продукты и услуги через платформы российских авиакомпаний. **Задачи исследования**: 1. Понимание общего рыночного ландшафта и основных причин трансформации бизнес-модели перевозчиков; 2. Исследование научной и бизнес-литературы на тему дополнительных продуктов и услуг для выявления релевантных факторов, влияющих на приобретение таких продуктов и услуг российскими потребителями через платформы российских авиалиний; 3. Проведение потребительского эмпирического исследования с целью проверки поставленных гипотез; 4. Проведение анализа и выявление лучших практик авиалиний в области дополнительных продуктов и услуг; 5. Подготовка комплексной системы рекомендаций для авиакомпаний на основе полученных выводов. **Основные результаты исследования:** 1. Был проведен комплексный анализ рынка авиалиний, выявлены основные тенденции и прогнозы развития индустрии в будущем; 2. Изучены релевантные предыдущие научные работы ученых, а также индустриальные отчеты и статьи; 3. Составлено и проведено онлайн-исследование отношения российских путешественников к покупке дополнительных продуктов и услуг через платформы авиакомпаний; 4. Выполнен факторный анализ при помощи программы WarpPLS 7.0 и выявлены факторы, оказывающие наибольшее влияние на поведенческое намерение приобретать дополнительные продукты и услуги на платформах авиакомпаний; 5. Подготовлена комплексная система рекомендаций для менеджеров российских авиакомпаний.
Ключевые слова	Авиалинии, трансформация, бизнес-модель, дополнительные продукты и услуги, факторный анализ, UTAUT2

ABSTRACT

Master Student's Name	Ledovskaya Angelina Yurievna
Master Thesis Title	Business model transformation of full-service airlines: ancillary opportunity
Educational Program	Management
Main field of study	Management
Year	2020
Academic Advisor's Name	Andrey Vasilievich Zyatchin
Description of the goal, tasks and main results	**The goal of this research:** to identify significant factors that affect the behavioral intention to purchase ancillary products and services through Russian airline platforms. **The tasks:** 1. Understand the general market landscape and underlying reasons for the business model transformation; 2. Study theoretical research on ancillary products and services for the identification of relevant factors influencing purchase of ancillary products and services through airline platforms by Russian consumers; 3. Conduct consumer empirical research in order to test stated hypothesis; 4. Conduct analysis and identify best practices in the field of ancillary products and services; 5. Make complex system of recommendations for airline companies. **Main results:** 1. A comprehensive analysis of the airline market was carried out, the main trends and forecasts of the industry development in the future were identified; 2. Examined relevant previous research work of scientists as well as industry reports and articles; 3. Compiled and conducted an online study of the attitude of Russian travelers to purchasing ancillary products and services through airline platforms; 4. A Confirmatory Factor Analysis was performed using the WarpPLS 7.0 program, that helped to identify the factors that have the greatest impact on the behavioral intention to purchase ancillary products and services through airline platforms; 5. A comprehensive system of recommendations for managers of Russian airlines has been prepared.
Keywords	Airlines, transformation, business model, ancillary products and services, факторы, UTAUT2

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Introduction

Airline industry is one of the biggest economic sectors in the world — more that 5% of global GDP supported by air transport and tourists. Nevertheless, it is a highly competitive environment and comparatively low industry profitability. At the same time, nowadays there are significant changes in the industry: hybridization of business models — “complex phenomenon” that affects both full-service and low-cost carriers — changes already volatile landscape. Catastrophic losses due to COVID-19 pandemic at the beginning of 2020 will shape the industry for the next 5–10 years. All of these factors create an opportunity for performance maximization through the use of technology, which recently has become a leading factor in the success of airlines in the hyper-competitive market in conditions of external instability and internal constraints.

Potential solution for these challenges is ancillary revenue development and relevant necessity improving of merchandising capacities. This can add value to the entire customer experience, which is especially relevant for full-service carriers, which drives profitability and customer satisfaction, because customers all over the world positively accept different ancillary). In addition, ancillary products and services are possible during the whole stages of travel journey. Finally, airlines have another strong advantage such as a strong brand and more direct traffic to the websites and other airline platforms, than most other travel companies, since tickets searching and purchasing still are one of the most basic elements in the travel planning. The purpose of the paper is to identify the barriers that prevent passengers of Russian airlines from purchasing ancillary products and services from airline platforms and make recommendations for Russian airline companies. Many studies on ancillary revenue have been conducted on the choice and behavior of both full-service and low-cost airlines, but only a few studies have examined the factors that lead to customers purchasing ancillary products and services and the willingness to pay for them.

At the same time, insufficient attention to the new mathematical models and factors that affect airline customers purchasing intention of ancillary products and services allow us to find a gap in research and expand our understanding of these processes. In addition, previous researches are highly localized and focus predominantly Asian markets, which additionally opens up opportunities for research.

The goal of this research to identify significant factors that affect the behavioral intention to purchase ancillary products and services through Russian airline platforms.

Object of the study are ancillary products and services development in Russian airline companies. Research subject: reasons for the buyers rarely buy more products and services through the different airline platforms.

The tasks of the study are:

1. Understand the general market landscape and underlying reasons for the business model transformation;
2. Study theoretical research on ancillary products and services for the identification of relevant factors influencing purchase of ancillary products and services through airline platforms by Russian consumers;
3. Conduct consumer empirical research in order to test stated hypothesis;
4. Conduct analysis and identify best practices in the field of ancillary products and services;
5. Make complex system of recommendations for airline companies.

The primary data will be collected for the analysis and the extended modified unified theory of acceptance and use of technology (UTAUT2) will be used for the following reasons:

- Widely used in modern research and aimed at explaining of the acceptance and use of information and communications technologies specifically by customers;
- Tests consumers' intentions;
- Integrates elements across eight prior models and demonstrates stronger predictive power than any of the previous models;
- Used in similar travel studies: online purchasing of airline tickets, online booking of rural tourist activities, direct booking from hotel platforms, OTA's.

The framework was modified in two ways: new variables were added (perceived personalization, trust and switching costs) and some variables were excluded (facilitating conditions).

Research questions are the following:

- What are the key factors that influence the adoption of purchasing ancillary products and services directly through the airline platforms on Russian market?
- How much of the variation in airline platforms acceptance can be explained by the selected factors?
- What recommendations could be given to managers of Russian airlines based on the results obtained?

The paper consists of three main parts. The first chapter presents theoretical framework and describes the market landscape, challenges for airline companies and potential solution. This chapter also provides the current research on ancillary revenue and formulated research gap. The second chapter presents theoretical framework and the research methodology with the stated hypothesis. The third chapter shows empirical part, namely PLS-SEM model used and final results obtained from the analysis in WarpPLS 7.0 software: rejected and approved hypotheses. This chapter discusses the results of the analysis and practical contributions for airline managers.

This work contributes to the holistic understanding of what factors should be taken into special consideration when making decisions regarding the development of ancillary revenue opportunities in Russian market from the position of consumers, since they are the end users of services and directly affect the growth of these revenues. In addition, the work helps to understand the key areas for applying innovations and technologies and the subsequent transformation of operating models in this case.

Chapter 1. Main drivers of business model transformation in airline industry

1.1 General landscape for business model transformation in airlines: definition and recent developments

The concept of business model has been widely discussed by researches in recent years. The topic became noticeable in the late 1990s and has been developed by many authors significantly over time. It is complicated to formulate the universal definition of this concept, since many authors apply different approaches. However, almost all authors agree on main components of business model such as value proposition, processes, revenue and costs. In this case business model explains how the company organizes and uses its existing resources in order to carry out current operations day after day, best embodying its business strategy in order to achieve the main goal — create the value for its customers, which was highlighted from the beginning of concept development according to the Linder and Cantrell (2000).

The business model explains how an organization works and this is an essential prerequisite for the success of the company (Magretta, 2002). Since the active development of this concept occurred in the era of the dot-com boom, technological aspects play an important role in the business model management. It combines technical potential with the realization of economic value (Chesbrough, Rosenbloom, 2002).

Creating and delivering value is possible only through a well-defined business model. It clarifies the needs of the consumer and their ability to pay, determines the way the business delivers value to the consumer, encourages consumers to pay and converts payments into business profits through the necessary structure and interaction of various elements of the value chain, which helps to understand the whole business logic of company's activities (Teece, 2010 Osterwalder et al., 2005).

Currently, the development of the concept continues, its application is often of an informal nature, allowing for significant variations. As it could be seen from the table below, value proposition, processes, revenue and costs streams could be considered common components of business model concept.

Development of business models is extremely crucial, because an improved business model often provides a better idea or technology (Chesbrough 2007). The company's business model is becoming tangible only by constantly rethinking it through research on customers,

value proposition, and sources of revenue (Gassmann et al. 2013). Moreover, significant changes in technologies allow industry business models to be transformed (Sengur, 2017).

In the context of globalization and integration of the world economy, civil aviation plays an important role. It is of great importance in solving socio-economic problems, as well as in improving the quality of life of the population. Over past 3 decades, numbers of carried passengers has been steadily growing (World Bank, 2020), many new carriers has arrived to the market.

Airline industry can be characterized by competitive environment and comparatively low industry profitability. Operating profit margins for the leaders of airline industry approximately even reach 20% (BCG, 2020). This forces airlines to adapt their business models (or business models) to market challenges. Traditionally 2 main models are considered: full-service carriers (FSC) and low-cost carriers (LLC).

Despite the differences between the strategies used by full-service carriers, there are several main characteristics inherent to this type of carrier. Full-service carriers traditionally provide passengers with full pack of qualified services, such as luggage, meals on board and entertainment systems (Gillen and Gados, 2008). Most of all these companies using this business model have a wide network of routes and carry out transportation on the hub-and-spoke model (Lawrence, 2004), which is the presence of the airline's hub, where the most expensive operations related to flight servicing are performed. The presence of a wide route network, in turn, affects a large number of costs incurred by airlines: an extensive fleet of aircrafts for long-haul and short-haul flights and associated operating costs.

Low-cost carriers basically focus on the mass market, have high rate of aircraft turnover and mainly operate within short-haul flights. Such airlines are attractive for both tourists and business passengers due to frequent flights and relatively low ticket prices. Low-cost airlines are considered now as a main driver of development of airline industry. The share of low-cost airlines in the global passenger transportation industry is increasing from year to year, which testifies to the high dynamics of the development of this direction in the airline industry. According to the International Air Transport Association (IATA), the world passenger traffic of LCC 2018 increased by 13,4% in 2018 with the overall dynamics of the industry of 6,9%, accounting for 21% of the market (compared to 11% in 2004). Within the most popular low-cost airlines are Ryanair, easyJet and Pobeda.

Main differences between main types (low-cost and full-service airlines) of business model are presented in the table below.

Table 1. Differences between main types of operating model

Aspect	**Low-cost airlines**	**Traditional airlines**
Message	Cheap price	Quality service
Pricing	Simple pricing	Price depends on a large number of external factors
Airport hubs	Small and cheap airports with simple ground handling (regional and secondary)	Large aviation hubs (major and conventional)
Flight routes	Point-to-Point	Hub-and-Spoke
Class of service	1 class (Economy)	More than 2 classes (Economy, Business Class, First Class)
Fleet use	Intensive	Average intense
Flights duration	Direct and short haul (no longer than 3 hours)	Long haul flights with transfers and direct and short haul flights (1-20 hours)
Parking at the airport	No longer than 25 minutes	Longer than 1 hour
Services on board	One type of service, additional are payable	Several types of service, additional are free
Number of seats on the plane and location	High density of seats	Dilution of seats

Source: developed by author

Traditionally, only FSC and LLC models were distinguished by researches. In the past decade "hybrid" airlines arrived to the market. Nowadays several airlines operate within this business model, for example AirBerlin, JetBlue, Norwegian Air, Southwest Airlines, Germanwings and Bamboo Airways. Most commonly this term is used to separate low-cost carriers with a low standard of service (Ultra-Low-Cost carriers) from Low-Cost-Carriers that offer a better standard of service. That means that they are trying to combine the cost-saving approaches, the flexibility and wide network of routes (Sable, 2010). Some researches state that Ultra-Low-Cost model (ULLCs), which implied tighter cost optimization, has become

completely outdated, since the difference between ULLCs and traditional LLCs blurred (Bachwich, Wittman, 2016).

However, it can be noted that most of airlines are now becoming hybrid. This could be considered a "complex phenomenon" that affects both full-service and low-cost carriers (Tomova, 2017). In search of effective business models their characteristics have got mixed: traditional companies adopt the techniques of low-cost carriers, and low-cost carriers, in turn, expand the range of available services, which leads to the generation of new value for customers (Koch, Douglas, 2010). Competition with low-cost airlines also helped accelerate the introduction of new technologies by airlines, for example electronic tickets and online registration, as well as additional services such as taxi ordering or hotel accommodation. However, not all researchers agree with this view. Some researchers believe that the transformation from a pure business model to a hybrid one decreases the airline's ability to achieve a sustainable competitive advantage due to inconsistencies between the value proposition and other elements of the business model. To survive in the airline industry it is still necessary to highlight a clear differentiation among the high- and low-price services in order to show a value proposition (Daft and Albers, 2013; Corbo, 2016).

In general changes in business models of airlines as in many others industry are driven mostly by 5 groups of factors of social, technological, environmental, economic, and political nature, which is called STEEP Framework. Using this approach, IATA[1] conducted a research based on interviews with airlines' representatives and experts and shortlisted the main drivers of change that would influence the business of airlines in the future.

Table 2. Classification of drivers by IATAs report «Future of the airline industry 2035»

Social	Terrorism; Urbanization; Global aging; Healthy lifestyle; Development of the APAC[2] region; New models of consumption; Data protection and privacy; Ethnic, political and religious changes
Technological	Artificial Intelligence and Machine Learning; Cybersecurity; Robotics and automation; 3D Printing; Virtual and augmented reality; Computer vision; Internet of Things; Alternative fuels and energy sources; New

[1] The International Air Transport Association

[2] Including China

	aircraft designs; Alternative modes of rapid transit; Geospatial technologies
Environmental	International regulation of emissions and noise pollution; Resource nationalism; Personal carbon quotas; Water and food security; Environmental activism; Extreme weather events; Rising sea levels and reclaimed habitats; Human-controlled weather; Circular economy; Infectious disease and pandemics
Economic	Global income inequality; Strength and volatility of global economy; Price of oil; Level of integration along air industry supply chain; Shift to knowledge- based economy; Privatization of infrastructure; Concentration of wealth into a "Barbell economy"; Unionization of labor and regional independence; Open data and radical transparence; Changing nature of work and competition for talent
Political	Bribery and corruption; Geopolitical instability; Government ownership of airspace and critical infrastructure; Strength of governance; Anti-competitive decisions; Defense priorities dominate civilian needs; Shifting borders, boundaries, and sovereignty; Increasing influence of alternative regional and global institutions; Trade protection and open borders; Rise of populist movements

Source: IATA «Future of the airline industry 2035»

Based on these drivers, most impactful and uncertainty issues, Geopolitics and Data, were defined. According to IATA, 4 main scenarios are possible. Key findings in terms of technologies and business models are presented below.

- Sustainable Future Scenario (Calm, connected and open world; totally data-driven business models; accurate forecasting of consumer behavior; shared access to information; huge impact of data-driven technologies and tools; wide implementation of blockchain tools and real-time monitoring);
- New Frontiers (Turbulent, connected and open world; huge democratization of data; cybersecurity risks, air congestions are eliminated by data-driven technologies; people are ready to share personal data for better convenience; traditional supply chains are eliminated by blockchain and 3D printing, customer satisfaction as the main focus; active development of sharing economy models);

- Platforms (Calm world and closed data opportunities, deployed by major corporations, since companies tightly control the data as they seek to gain a pioneering edge over their existing competitors; development of sharing economy models is limited);
- Resource Wars (Turbulent world and closed data opportunities)

It seems, that the airline business is very sensitive to economic and political changes that are difficult to control due to high uncertainty. This proved also by the historical statistics. According to the International Civil Aviation Organization (ICAO), throughout the past 3 decades reductions in air traffic were significantly affected by:

- The Gulf War and economic recession in the 90s of the 20th century;
- After the events of September 11, 2001 in the US;
- Due to the SARS outbreak that spread to East Asia;
- In 2007-2009, with a record oil price spike and the subsequent global financial crisis;

The only airlines that, despite financial, political and social collapses in the world, not only did not suffer losses, but also declared annually increasing profits, were low-cost airlines. However, due to the COVID-19 pandemic at the beginning of 2020, the world economy faced huge losses in many areas of business, especially passenger air transportation was affected by the pandemic. Airlines (mostly LLCs) unprecedently grounded their fleets with no confirmed date as to when they would restart. Moreover, many full-service carriers significantly reduced the number of flights. For example, the number of Aeroflot flights per day due to the crisis has fallen 10 times from about 800 flights per day to 50-80[3]. Some analysts agree that it is low-cost airlines that will shape new realities within the European market. It is predicted that low-cost airlines are preparing for a price war by actively dumping and driving competitors out of the market. This evidence increases the importance of full-service carriers to be prepared to the uncertainty and transform the business model in order to be more competitive.

It is quite difficult to influence political and economic factors, but companies can maximize their performance through the use of technology, which recently has became a leading factor in the success of airlines in the hyper-competitive market in conditions of

[3]https://www.forbes.ru/newsroom/biznes/399107-aeroflot-nazval-sroki-vosstanovleniya-posle-krizisa?utm_source=twitter.com&utm_medium=social&utm_campaign=aeroflot-v-10-raz-sokratil-chislo-reyso

external instability and internal constraints, such as the inefficiency of business processes, a heterogeneous level of service and customer service.

Nowadays airlines pay special attention to the use of data-driven technologies such as artificial intelligence, blockchain, big data and machine learning, since they significantly drive transformation of airline value chain as well as operations or revenue models. Moreover, data-driven technologies enable to enhance customer-centricity, which is a crucial factor for airlines to survive, meet customer needs and generate additional revenue to support current operations (Mindtree, 2017). Leveraging such technologies can deliver added value for passengers due to higher personalized approach to services (Nawal, 2011).

Most players in the airlines market are already actively experimenting with new technologies and digital solutions, such as in-depth analytics and artificial intelligence, but in general, the aviation industry is still only at the very beginning of a long and deep transformation. Velocity and volume of data for the airline industry is going to increase dramatically in the next few years (SITA, 2019).

First of all, such technologies as *machine learning* and *artificial intelligence* allow airlines to reach a fundamentally new level of loyalty program management. It could be stated that such revenues can reach up to 15% (Fortune, 2015). BCG states that Artificial Intelligence with the help of other technologies can be implemented along the whole customer journey of passenger both from internal and external perspective and significantly improve the customer satisfaction. In addition, machine learning can help airlines to optimize booking systems. Aeroflot, for example, has implemented an intelligent passenger segmentation system that allows to find unique client profiles by comparing and merging passenger data from various sources, as well as marketing communications data with clients. Then, service recommendations helps the client to select alternative proposals for possible air travel points, based on the history of his flights and the patterns found. Another module of the system calculates the Customer Lifetime Value indicator (CLV) and, on this basis, assigns customers to one or another segment. Another system analyzes passenger profiles to find out their susceptibility to various communication channels.

Blockchain can bring the greatest benefit to airlines in the main 4 areas of activity: work with passengers, maintenance and repairs, ground operations and revenue accounting (The Boston Consulting Group, 2019). One of the main applications of the blockchain in aviation is the distribution of tickets through an agent network. The company uses smart contracts — they ensure the closing of the transaction when certain conditions are met. Blockchain allows

companies to simplify and make the work as transparent as possible with agents that sell airline tickets. In addition, agents when applying the blockchain do not need to receive a bank guarantee or keep a deposit in the airline to guarantee payment for the purchased tickets. Since the system, when a ticket is sold, verifies the availability of funds at the agent in the accounts and immediately transfers them to the airline. This is an advanced technological tool for direct interaction between the airline and the agent, bypassing intermediaries. Thus, blockchain can significantly expand the agent network and reduce the accounts receivable of the airline.

Another direction for using the blockchain is aircraft maintenance. Maintenance and confirmation of the authenticity of spare parts are critical to ensuring flight safety, the facts of servicing a component of a vessel are stored mostly in paper form, and there is a risk of losing them, and the restoration is rather problematic and requires considerable labor costs. The use of the blockchain is possible within the framework of the process: the essence is to connect all companies to the platform whose information is necessary to track the history of the origin of parts (manufacturers, airlines, maintenance providers). Moreover, by collecting real- time data and tracking steps through a detailed blockchain flight checklist, it can help airlines coordinate all crew members and service providers such as cleaners, baggage handlers, food service providers and ground crews of airports that companies depend on departure time and further determine the source of any delay.

Most airlines focus their blockchain efforts in improving customer experience. When members of an airline loyalty program travel through a partner airline, it can be difficult, error-prone and time consuming to combine credited miles or points and correctly depositing these credits into the customer’s account. Smart contracts can simplify and automate the process among airlines, minimize the risk of errors and increase customer satisfaction. There are many applications developed to increase customer loyalty. For example, Singapore Airlines has developed a digital wallet that allows customers to use frequent flyer miles from participating retailers, and Cathay Pacific Airways's loyalty application allows partners and members to use their rewards immediately in real time.

Lufthansa reported, that it is currently developing a platform based on blockchain technology: through it, agents, even small ones with no experience in the tourism industry, will be able to directly access airline and hotel booking systems, avoiding thereby intermediaries. Lufthansa is also developing an aircraft maintenance platform. In 2016, the company launched the Blockchain for initiative to gain experience and capture opportunities in using blockchain

technology in aviation (Lufthansa Industry Solutions, 2018). The main goal is to unite all possible participants and jointly explore the potential of this technology.

In view of the above, it can be concluded that the airline industry is constantly being transformed under the influence of various factors. Technologies allow both reducing costs and actively increasing revenue have a special impact on the transformation. At the same time, the implementation of new technologies is rather a supporting factor that accompanies conceptual changes in the market. The hybridization of the industry can be considered one of these changes, the impact of which will be described in the next section.

1.2 Hybridization of full-service carriers and growth of ancillary revenue

The industry "hybridization" was statistically proved in 2015 by German researches Daft and Albers: convergence of airline business models was increased by 19% from 2004 to 2012. In this case, traditional carriers might use separate principles of low-cost airlines and introducing flexible service formats: they have a module tariff policy, in which low non-refundable or non-refundable tariffs are introduced, as well as availability of additional services. In this case, more and more full-service companies charge the core ticket price for transportation services, which is comparatively low to the average historical price, and selling additional services separately. This approach allows companies to compete such companies with low-cost services with traditionally low-priced tickets.

Until a few years ago, traditional air carriers used a highly diversified fleet in terms of the type and family of aircraft. In order to reduce costs, they started to copy the approach of low-cost carriers and began to increase the number of identical aircraft in their fleet (Tomova, 2017). Moreover, some traditional carriers are adapting the so-called "The Dual brand Strategy" (Guillen and Gados, 2008). This involves the creation of subsidiary airlines under a separate brand based on product differentiation and aimed at defending market share (Whyte, 2015). In general, the presence of an LCC subsidiary cannot be considered the main source of profitability increase, but it might help to improve capacity, allowing to be more flexible and to test changes in business models under a separate brand. The low-cost subsidiaries Transavia, Vueling, Pobeda, which were founded by KLM, Iberia and Aeroflot respectively, are such prime examples.

It is also possible to track hybridization in the opposite direction: some low-cost carriers that did not initially have business class return this option, while traditional carriers can reduce this option to a minimum (Douglas, 2010). Some LLCs are implementing various additions to

their business models, for example, maintenance at major airports, along with traditional airlines, developing hubs in the regions with transfer options and loyalty programs, providing food and other on-board (de Wit and Zuidberg, 2012). Some airlines also altered their short-haul approach, expanding operations to long-haul market and introducing transatlantic flights (De Poret, 2015). Moreover, many LLCs nowadays join alliances, which was usually characteristic of full-service carriers.

Paid in-flight service by traditional carriers is also a measure of ongoing hybridization. In the context of industry liberalization, traditional carriers may charge additional fees for flight services in excess of the ticket price or reduce the quality of in-flight services, strengthening the multu-segment product and price policies. In this case a passenger with minimal requirements buys a minimum set of services, and with maximum requirements — all services. This strategy called "add-on bundling" is supported by many researches and executives of full-service airline companies, since it allows carriers to satisfy diverse segments of travelers and not lose potential streams of revenue, being flexible in terms of multi-segment and customized product (and price) policies (Nason, 2009; Robbert and Roth, 2018).

This approach follows from the development of revenue management practices. According to some experts, it was airlines that pioneered advanced revenue management technologies in the 1970s. Although this claim is controversial, they were definitely the first in the transport industry to apply dynamic pricing to manage and optimize the resource of seats in the cabin of an aircraft in the 1980s and 1990s, including a consistent upgrade of forecasting tools and various tools for adjusting fares. Over the past decades industry has been impacted by consolidation and increasing competition. In these conditions companies have been seeking new opportunities for the new streams of revenue. The constant growth of ancillary revenue has is an strong evidence of this tendency. Moreover, airlines are able to apply digital technologies and build sophisticated pricing models and personalized offers due to huge amounts of passenger and external data.

Nowadays ancillaries have been considered an important stream in revenue management practices. In broader context, ancillary revenue means generation of revenue from the purchasing by passengers secondary products and services that are not charged in the ticket price (Budd, 2016). It's developing and becoming an omni-channel retailers are on the agenda of many airlines, for which the flight segment could be just one point of interaction with passenger digital travel eco-system. In this regard, ancillary revenue can be an additional income beyond the sale of tickets that airlines could generate through direct sales or by

additional sales as a part of travel experience (O'Connell and Warnock-Smith, 2013). All global trends indicate that industry will not be able to earn money only on direct transportation services and many top executives stated[4], there is a strong evidence to increase income from auxiliaries. Over the last years retailing in airlines itself can be considered one of the most industry disruptions. International Air Transport Association (IATA) states that ancillary revenue is one of the most important factors that drives profitability and consider an essential element for improving financial results, since core transportation businesses is completely low-marginal. According to McKinsey and IATA, the potential of developing ancillary products and services could be estimated by additional 40 billion dollars earned by 2030.

Many airline companies are intending to improve their merchandising capacities in order to gain extra revenue at the initial stage of the booking of seats. They are either grappling with the up-selling practices such as unbundling and growing sales of their own products and services or with cross-selling additional products for traveling such as insurance, hotels, car rental and many others. In this case, one of the big obstacles is significant competition from other players in the travel industry in general, such as online travel agents and meta-searches, which have become more advanced at providing passengers with a broader variety of travel options. The travel market is quite divided between these companies that provide services for booking hotels and other ancillary services for traveling.

When a consumer books a ticket, the emphasis is on having the best price, and extra amenities that are not connected to the cost may be overlooked. However, when the passenger is moving closer to their trip, additional items such as food, seat improvements and destination events can be deemed a viable choice. Furthermore, by implementing a holistic approach, the customer's travel touch points before, after and after booking will be handled individually with the same ancillary items, making it much harder to market ancillary products and services.

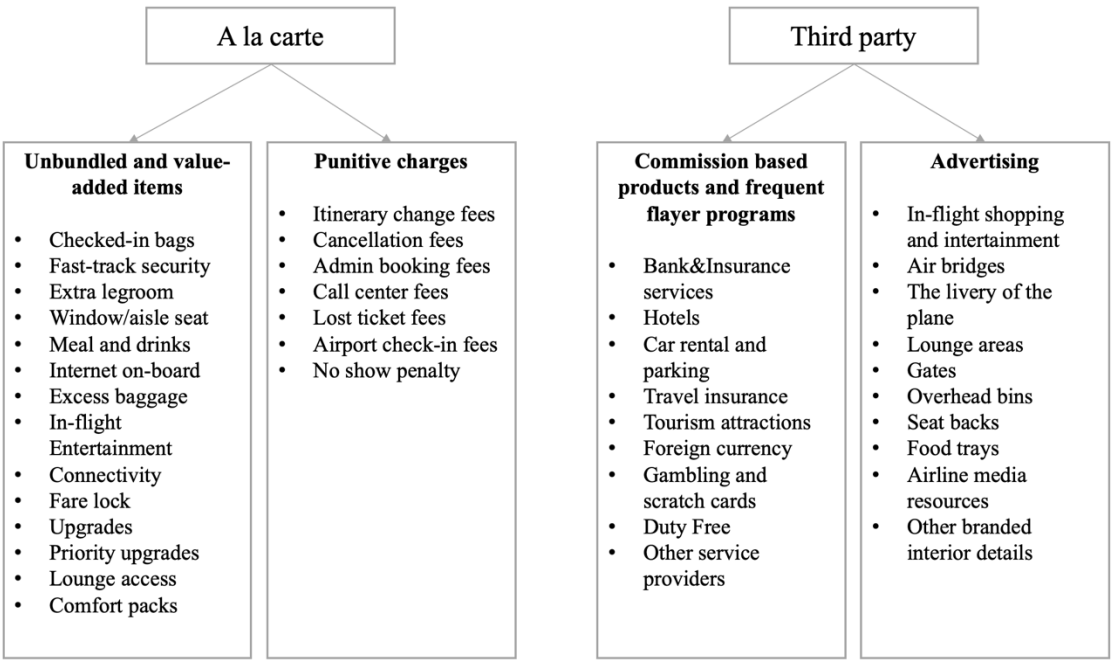
In this sense, the transformation towards a digital online retailer that also provides and manages flight services is the way out. In general, there are several main steps that should be done on order to transform an airline company into a retailer (Taneja, 2019). It is necessary, first of all, to develop a personalized and simple customer experience, since consumers have a whole set of expectations formed from their previous experience with large retail platforms-disruptors. Airlines already have the advantage of the wealth of customer data they possess,

[4] https://www.rbc.ru/business/15/03/2019/5c8ba4569a79476be9364607

and use profiling mechanisms to identify the customer if they can match it from their various data sources and integrate it on a single platform. Moreover, airlines have another strong advantages in this regard such as a strong brand and more direct traffic to the websites and other airline platforms, than most other travel companies, since tickets searching and purchasing still are one of the most basic elements in the travel planning. After the booking process is started, the airline company has already collected great amounts of insightful data that puts it ahead of other travel sectors, which gives the airline leverage and supports a differentiated offer. Differentiation is particularly important for full-service carriers, as it allows them to strengthen their competitive advantages.

Ancillary revenue can be divided into two main streams: A la carte and third-party auxiliary streams (Warnock-Smith, 2017). The detailed scheme of ancillary revenue streams is provided below.

Figure 1. Ancillary revenue streams



Source: developed by author based on Warnock-Smith, 2017

The first includes unbundled and value added items and punitive charges. There could be several sources of unbundled items, nevertheless they have been traditionally included in

tickets price: checked-in bags, extra legroom, window/aisle seat, meal and drinks on board, excess baggage, IFE, Connectivity on-board, Fare lock, Upgrades, Priority Upgrades and Lounge Access. In this case, many traditional carriers have not provide the full package approach yet in exchange for an additional package when selling their air tickets, which can be negatively perceived by customers due to unclear blurred value proposition of full-service carriers despite the positive idea of customization to different customer segments (Robbert and Roth, 2018). Moreover, many customers can just dislike any ancillary fees (Waguespack, 2014). On the other hand, services, such as reducing waiting with priority security and boarding, and airport transfer or Wi-Fi internet connection on-board and other elements of in-flight comfort could provide additional value for travelers and improve their travel experience at all, making it more tailored. (Amadeus, 2014; Budd, 2016). Adding wider number of supplementary services customizes the flying experience for passengers based on goals of the journey and maximizes the value.

Punitive charges might be collected in case of itinerary change fees, cancellation fees, admin booking fees, call center fees, lost ticket fees, airport check-in fees, no show penalty.

The second category includes commission incentives and revenue from frequent flyer programs, and advertising. In this regard ancillary revenue provides airlines two possible options for transformation: implementing "Online Travel Agency" model (OTA model) and becoming so-called media-provider. In this regard, airlines are becoming more than just carriers, transforming into platforms. Moving towards "platformization" enables airline to capture travelers by providing core products at low prices (or even free of charge), and then monetize customers by selling additional services and/or allowing third parties to advertise and sell their offers (Arthur D. Little, 2018). The "pure model" of becoming so-called media providers is strongly supported mostly by constant growth of ancillary revenues of airlines and recent collaboration with brands, when designing and maintaining aircrafts and cabins.

By providing supplementary services from third parties such as hotels, car rental, insurance services and other travel products, airlines earn a commission on each sale and can significantly increase ancillary revenue. Some passengers find that booking and purchasing supplementary services for their journey directly from the airline platform is easy and secure, since they do not need to purchase another services for other third parties platforms (Cook and Billig, 2017). Moreover, according to research by Bain & Company and Google (2019) travelers would like to decrease the time they spend on online booking of all parts of travelling

during the whole journey of seeking inspirations, researching travel options, comparing prices among different providers of services and purchasing chosen options.

Moreover, frequent flyer programs could help airlines to make ancillary revenue both from incentive perspective for customers to purchase ancillary products and making money on commission. Airlines also market their frequent flyer points to business sponsors, who instead give the points as a promotional bonus to their own consumers. Customers can earn a large amount of frequent flyer points using the credit card, which can then be used on a trip or on certain transportation goods and services. Although credit cards still appear to control the market for frequent flyer ancillary sales, they are not the only business partners involved in doing this form of business. There is also a monetary arrangement apart from the apparent reward partnership that is established by a frequent flyer scheme. Airline passengers can purchase frequent flyer points directly. You may purchase these as a present to a friend or family or for personal use. Often charging for a ticket or other facility with points rather than cash might be more cost-effective, and this will entice the consumer to buy points. When purchasing points from consumers it helps create more profits for the airline.

Nevertheless, nearly half of airline passengers do not know how their loyalty programs work according to the J.D. Power 2019 Airline Loyalty Program Satisfaction Study, some airlines show remarkable examples of revenue growth per passenger due to the sale of partner products and using loyalty programs. For example, Qantas airlines, in order to involve passengers in brand development and purchasing partner products, issued points for physical activity and good sleep to passengers in its loyalty program through the well-being app, diversifying private health insurance.

Within selling commission-based products and services, the dynamic packaging is possible. This concept is becoming increasingly popular and means a mechanism in which the tourist receives not a standard tour operator prepackaged tour, but a dynamic package collected in real time. The mix of product and services is based on the tourist's wishes and requests, representing personalized tours which allow travelers to book, arrange and pay for a trip on the most favorable terms in a few minutes. This is achieved by directly accessing the resource systems of airlines, hotels, and travel service aggregators during the booking process via airline platforms or via special promotion before or after purchasing airline tickets. The mechanism enables airlines to earn three-five times as much by providing such service as though they were merely selling flight tickets. Many airlines has incorporated this option into their processes. For example, S7 Airlines has started offering its passengers dynamic packages that combine

flight and hotel accommodation at the best price, which gives passengers the opportunity to save on their trip. To reduce fares, the airline works directly with hotels.

In general, passengers at some markets positively perceive the ancillary products and show the willingness to purchase such commission-based offerings, which proves the viability of further developing ancillary revenue streams (Song, 2020). Despite the fact that airlines have been engaged in upsell and cross-selling additional travel services and products for a long time, the main opportunity is presented in the development of providing value-add experience, digital interaction and the use of a personalized approach by understanding, focusing on and satisfying passenger needs. In this regard, by increasing the number of products used by travelers, airlines can present a more relevant service and increase the frequency of travelers' needs for consuming these additional services, expanding business model from operating within only transportation-oriented carriers to leisure-oriented one and interacting with the while travel journey of passengers.

The favorable development of the ancillary products and services market is largely driven by the recently implemented NDC system, which is based on the well-known XML technology. The new NDC system, which has been approved by the IATA, regulates the standard for transmitting data directly from the airline to the TMC (Travel Management Company) system. It makes it much easier to sell ancillary services, providing consumers with almost all the necessary information; collecting information about customer requests and, after analyzing them, making personalized offers specifically for a specific client; facilitating communication under three-way agreements, and dynamically updating prices when ordering ancillary services. The standard creates an opportunity for market participants to organize a more personalized sales process, making it more transparent, offering a wider range of products to the customer and reducing distribution costs. Using NDC allows online agents to directly get the most complete information about the airline's flights and services in a single standardized format. With the introduction of the new standard, online agents will be able to offer all the additional services available on the airline's website on their websites. For example, choosing a comfortable seat on Board, additional Luggage, and others. Passengers, in turn, get the opportunity to save significantly due to access to the entire range of fares and services of the airline.

Ancillary revenue traditionally was associated with low-cost carriers mainly because of “unbundling” conception of selling tickets. However, this model is also used by traditional airlines (Onboard Hospitality, 2011). In this regard, for traditional carriers, the main challenge

is the impact of additional options on customer needs and the perceived level of service, since fare sharing can reduce the perceived value of higher quality of traditional airlines and be a reason for switching to low-budget carriers. On the other hand, ancillary revenue can be considered a win-win situation for traditional carriers. Additional services can be important for many airlines, adding value to the entire customer experience. In this regard, the main competitive advantage for traditional airlines could become additional services on a commission basis. These products are positively perceived by passengers, so dynamic packaging strategies (combination of flights, accommodation, rental of cars, and tourist entertainments based on real-time dynamic inventory and pricing strategies) are potential for future growth (Song, 2020). In this case customer-centric approach could have a strong impact in supporting this strategy.

Moreover, the application of new practices of ancillary revenue development is highly relevant within Russian context for several reasons:

- The market for ancillary product and services from airlines is in its infancy;
- The usage of direct airline platforms is low, airlines pay commission and lose potential revenue;
- Top executives of Russian airline companies intend to increase revenue.

Thus, it is necessary to understand drivers of purchasing ancillary products and services directly from airline platform in order to make smart and efficiency decisions.

1.3 Current scientific research on ancillary revenue

In general, ancillary revenue topic has been explored in the scientific literature from several different perspectives. Many researches explored aspects such as the choice and behavior when passengers interact with both full-service and low-cost airlines. However, only several studies have examined the factors that influence on customers decision regarding purchasing ancillary products and services as well as the willingness to pay for them.

For example, Warnock-Smith and O'connell in 2013 conducted an online survey in order to examine passengers' booking preferences. They also explored particular attitudes to the selection of unbundled and commission-based products sold by airlines. Ødegaard and Wilson (2016) stated that the topic of ancillaries is a relatively undeveloped area of scientific research. Some years later, Leon Steven and Uddin Nizam (2017) also examined ancillaries and purchasing of such products and services. For these aims they applied logistic regression

and a generalized linear model. Their findings were the following: the number of times a passenger makes a flight per year and the purpose of the trip were significant and their age and gender were not significant. Warnock-Smith David, O'connell F. John, and Maleki Mahnaz in 2017 looked at the effectiveness of two main classifications of ancillary airline revenue: unbundled products and commission-based services. They determined passengers' willingness to pay for these services along with what type of ancillary items and acceptable price. Asian researches, Xu Yun, Xu Jianbin, and Bai Yu (2017), applied an integrated model based on the TAM framework and Howard-Sheth Model and analyzed customer acceptance factors for ancillary products. The result shows that factors such as customer behavior, personalized service, trust in the marketing channel, and risk affect customer acceptance for airline ancillaries. Moreover, Song (2020) examined the need among passengers of airlines for commission-based ancillary products and services from airline websites via dynamic packaging and the willingness to purchase them. The findings were the following: travelers in Korea demonstrated the need and willingness to purchase commission-based ancillaries when purchasing tickets from airline platforms. In general, the commission-based ancillary products are positively received by respondents. Thus, this study supported the viability of commission-based ancillary offerings from airline websites directly and showed the further potential for airline companies to develop capabilities of upselling and cross-selling though dynamic packaging strategies, as a one of the first steps toward becoming competitive travel retailers.

Moreover, several types of research investigated the adoption of mobile phones by air passengers to purchase ancillary services. Morozan (2014) expanded the popular theory of technology acceptance (Davis, 1989) and developed a comprehensive conceptual model that reflects the specifics of m-Commerce in air travel. Bogdan (2017) also explored how airlines use assistive devices to their advantage to add value and revenue sources to the booking system, offer their passengers flexibility, increase revenue and customer satisfaction, and interact with passengers at all points of contact to create commercial opportunities and differentiate their brand. Also, some researchers investigated the key antecedents of customers' behavioral intentions in using/adopting airline co-branded credit cards. For example, Wang (2016) used the Theory of Planned Behavior (TPB) framework and demonstrated that consumers' perceived benefits of airline co-branded credit cards, attitude toward airline co-branded credit cards, subjective norms, and perceived behavioral control are all positively and significantly correlated.

In general, customers all over the world accept the purchasing of ancillary products and services, both from unbundled products and commission-based ones. However, the area of factors that affect the purchasing decision of passengers directly through airline platforms is still unexplored. This is highly relevant due to the huge level of market competition raised from developing capabilities of meta-services and OTAs, which will be also mentioned in the next section.

1.4 Customer-centricity as the main driver of future development of full-service airlines' business model

There is an absolute evidence that airlines will continue the transformation of business model and will seek for new sources of revenue due to increasing competitive environment and low industry profitability. This is especially relevant for full-service carriers, when competing with growing low-cost companies. It is necessary to produce added value services and further consumer-driven product differentiation in order to tightly compete with LLCs (O'Connell, 2019). In this case adding value to the on-going processes is the most important part of successful transformation (Vatankhah, 2019). It is expected that in the next decade airlines will offer a more active degree of personalization and customer focus, building a common understanding of the client in all systems and points of contact (BCG, 2020). For example, airlines will be able to use their customer data for personalized offers that match passenger preferences and travel occasion. It is assumed that airlines will be willing to offer an individual discussion at all points of contact with the customer — before, during and after each flight. In this case IATA states that development of data strategies should be essential for airlines, since it has a positive impact on the consumers and the industry in general. There is a strong evidence, that airlines need to focus on customer service and satisfaction as well as interaction with passengers. However, many airlines still have not implemented a unified customer experience approach (Mindtree, 2017).

Contribution to the success of a brand by building a customer experience based on a brand that is different from the competition and which consumers are willing to pay for is the ultimate goal of customer experience. Providing full satisfaction with its implementation, good customer service provides revenue, profitability and growth (Frow and Payne, 2007). In general when customers are truly satisfied, they become loyal to the brand, which leads to increase the revenue per customer and revenue in total. Customer satisfaction has the greatest overall impact on customer engagement, which in turn affect customer loyalty, since it leads

to the intention for further repurchases and recommendations (Hapsari, 2016; Kos Koklic, 2017).

Airlines have a tremendous opportunity to create significant incremental income by selling customized ancillary services directly to the specific devices of travelers at the right moment. Through its very definition, mobile creates an perfect opportunities for the selling of ancillary items through allowing airlines not only to generate new moments raising sales, but also to advertise deals and items at the right time in the journey of end-travelers. Mobile helps airlines to translate common deals into more unique, tailor-made packages directly related to a user's interests, position and, most significantly, when they are most likely to switch, at the right time or travel sense.

According to Lau et al. (2006), the higher the quality of service offered supposedly, the better customer satisfaction. Quality of pre-flight, in-flight and post-flight services have a great impact on customer satisfaction, which in turn positively affects passenger loyalty (Namakasa, 2013). Since the services provided by low-cost and full-service airlines differ significantly, it is expected that the impact of these services on customer satisfaction will vary. This evidence enhances the relevance to explore the each stage of interaction with passenger in order to transform airline.

However, at many important stages in airlines decision-making process does not completely incorporate passengers' preferences, which can lead to a loss of potential revenue (Wei et al., 2020). For example satisfaction derived from LCCs' services have significant impact on repurchasing airline tickets after first trip (Saha and Theingi, 2009). This also can be clearly seen in flight scheduling with subsequent fleet assignment because of inconsistencies between the preferences of passengers and the offered flight options. Introduced approach for flight scheduling that is based on passenger choice has potential to significantly increase profits ranging from 15% to 40% in comparison with other traditional methods (Wei, 2020).

Traditionally passengers of LLC's perceive mostly value for money, stimulating airlines perform well on pricing mechanisms. Traditional full-service carriers balance value for money and maintain the high quality of service. However, hybridization of business models might be a reason of blurring these distinctions and add-on unbundling can become a serious problem for traditional carriers. In unbundling terms, the customer's intent is significantly lower than in traditional full-fare terms, even if the prices are exactly the same and both offers equally meet the customer's requirements. This difference is due not only to a reduced perception of value, but also to the seller's perceived motive. Consumers may perceive full

fixed rates as a customer-oriented offer, while modular rates with a minimal set of services are seen as a tool of deception. At the same time, perception can be reduced by explaining the transparency of intentions and focusing on personalization and customization of offers (Robbert and Roth, 2018). Moreover, the consumer value perceived by consumers for traditional carriers may vary depending on the travelers' experience, the airlines' approach to implementing and presenting "unbundling", as well as the specific situation (Wong, 2018). In this regard, airlines should also pay special attention to customer emotions, since they are significant factors determining passengers' satisfaction and could be serious obstacles. This is especially relevant for full-service carriers, since their customers highly perceive monetary value and demand high service, and airline could use personalization as an approach for further differentiation.

The concept of the personalization has been examined widely in the modern research. Many authors considered a personalization as an important approach for business advancement and customer loyalty in terms of information and communication technologies (ICT). It helps clients to adapt their products and services to their needs, offering tailored experience based on their preferences (Tam & Ho 2005; Xu, 2014). Moreover, several authors conducted qualitative analysis (Khaldoon and Kandampully, 2008) and listed items that could be potentially personalized (Mathew and Stone 2003; Pi, 2012).

It could be stated that nowadays personalization is one of the most debated subjects in the airline industry within current revenue management practices. It is provides an opportunity to offer tailored products to consumers based on the existed information about those persons. The development of personalization practices is mostly possible due to the recent deliveries of data-driven technologies, which present entirely new possibilities for making services even more versatile and personalized (Westermann, 2013). First attempts were made to suggest models that dynamically decide on availability based on different customer characteristics, for example the purpose of the trip or offering customized fares, which can be obtained through the booking process, loyalty programs and other historical data (Wittman and Belobaba, 2017).

In this case, only the maximization of consumer value can contribute to the further development of the airline's ancillary products. Airlines and their associated service agents should take care of increasing customer loyalty based on their habits and improve the quality of service based on personalization. Since OTA platforms are still the first choice for most customers, airline commission-based ancillary products should become the center of competition between airlines and OTA platforms, regardless of whether the airline

implementing the reform will consolidate the habit that customers already have and increase their loyalty. Personalization becomes perfect with the development of data mining and other relative technologies. For airline support products, it is important to properly use user data in order to promote flight information that meets their needs in a timely manner, or information about the promotion of relevant products (Yong, 2017).

Figure 2. Comparison of incremental ancillary booking offers

Source: adapted from Oliver Wyman (2016)

Online shopping, smartphones, and social media have left consumers with limited time to bookmark websites and download apps that provide quick and easy solutions. In the travel industry, this means that consumers gravitate to “one-stop shops” that are considered to offer good value for money, as well as up-to-date information and a booking experience without frustration. As a result, airlines have a significant barrier in the form of competitors for such platforms. Many airlines have developed efficient online booking streams for their main products, seats or rooms, and unbundled support systems. But they do not fully take advantage of the opportunities provided by travel-related support services, which can lead to them falling further behind OTAs in terms of customer attractiveness. Many airlines have also created only limited ancillary merchandising capabilities, focusing heavily on the customer's travel booking stage. OTA, on the other hand, invest heavily to cover additional sales from start to finish. They inspire ideas for the entire trip, easily sell targeted ancillary products between the booking and travel stages, and integrate customer rating and rating systems and social media links.

In general, customer centricity can be well structured by using Customer Journey Analysis, which helps to understand points and channels of the customer interaction with the

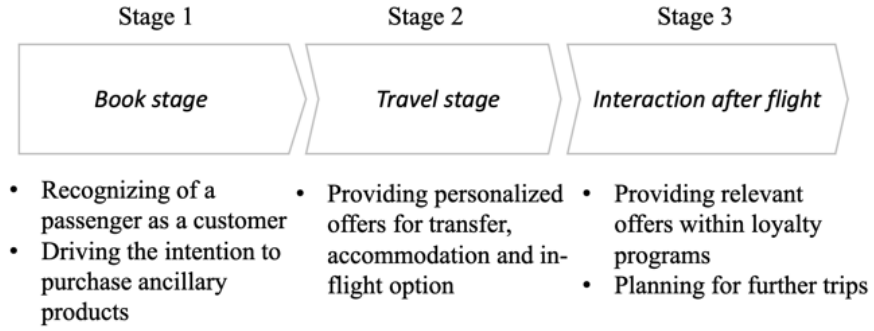
service. CJM reflects the customer's path to the product, identifies problem areas and suggests how to increase sales of ancillary products while increasing customer loyalty at the same time. The Customer Journey Analysis is a service development methodology that based on a detailed analysis of the needs and behavior of the audience. The result of its application is an increase in the percentage of customers who are satisfied with the use of the product or service. This approach allows to highlight the main indicators that are important to the consumer throughout the entire service consumption way. Analysis is mainly consist of Customer Journey Map (CJM) which mainly translates as "customer travel map" aimed at understanding of experience, the history of communication with the company, taking into account thoughts, emotions, goals, motives.

In airlines Customer Journey Map consists mainly of 4 main stages: dream and plan, book, travel, and after-sales activities. Currently incremental ancillaries typically offered through separate booking flow and white label solutions (Oliver Wyman, 2016). But it has the great potential to extend for the whole stages of travel journey.

Dream and plan stage is mainly devoted to tickets search. On this stage a potential passenger: develop a desire to travel, chooses destination, uses an aggregator site to search for tickets; chooses an airline flight as the most convenient flight; compares ticket prices at different venues and on the official website.

When selecting and buying tickets, the time of departure and arrival of flights on this route, as well as the time of connection in case of a connecting route, are important factors for the passenger (Wei, 2020). All these factors are determined by the flight schedule. Promoting the image of the destination also encourages passengers to buy a ticket, especially this has a positive impact on the activities of low-cost airlines (Hsu, 2016). Customer experience at this stage also could be improved by implementation of a personalized marketing approach for the potential passenger, offering personalized product bundles and generating personalized pricing based on advanced revenue management algorithms.

Figure 3. Stages of interaction with the passenger



Source: adapted from Amadeus (2017)

Book stage includes purchasing stage, that supposes recognizing of a passenger as a customer. Next *travel stage* consists of flight waiting, the way to the airport, time at the airport, on-board interaction and way to the destination. Travel stage could be boosted by using check-in technologies such as biometrics, facial recognition). Moreover, it supposes receiving by customer personalized ancillary product offers as well personalized offers for the next actions during the travel time to the airport and time at the airport. Moreover it is necessary to pay attention to the transportation prior to the baggage claim; waiting for baggage claim; baggage claim; exit the baggage claim area; ordering and waiting for a taxi to the end point of the route; ride to the end point of the route. This stage could be improved by offering favorite food on board, providing entertainment programs and other attributes based on detailed customer profiles that the flight crew can access as well as offering next stage of travelling (transfer or hotel booking).

Interaction after flight might be improved by personalized offers in loyalty programs that are possible for wide range of ancillary services and products, service recovery (its active resolution) and improving contact center by natural-language-processing sentiment analysis or chatbots.

Current practices show that personalized interaction between airlines and passengers mainly occurs at the booking stage. At the same time, airlines have great prospects for future growth due to improved customer experience, as the level of personalization and digitalization of the industry is much lower than the industry average for the leading industries in this respect — retail or media industry.

Moreover, airline platforms should provide a 360 travel experience with a goal of selling multiple travel products that drives not only ancillary revenue but also loyalty. Passengers could be attracted by discounts and loyalty incentives. In this case airlines need to continue prioritize direct booking channels and take mobile-first approach to passenger transactions, interactions and communications to be able to offer them ancillaries at more touchpoints throughout their journey.

Moreover, closer data exchange between different participants of travel ecosystem is expected in future. This includes the likely expansion of such ecosystems beyond alliances with different service providers, including those related to lifestyle, to cover the full range of products and services that travelers (including infrequent travelers) use in their daily lives. Leading airlines will create or join ecosystems in order to better understand a customer's overall journey, not just the flight component, and thus provide a better customer experience in general. By providing a better experience, the ecosystem will gain customer loyalty and a higher proportion of their revenue over time. In this case the role of implementation of data-driven analytics as well as technologies is expected to increase. This will significantly help to improve general airlines' performance by boosting traditional competitive advantages (Hagiu, Wright, 2020).

1.5 Summary of the chapter and Research Gap

Most players in the airlines market are already actively experimenting with new solutions for business models. There is an active hybridization of the industry, airlines are becoming more customer-centric and actively implementing data-driven technologies such as in-depth analytics and artificial intelligence. Because of blurred business models between FSCs and LCCs, full-service carriers has been losing competitive advantage, at the same time operating at very competitive and saturated markets.

Nowadays the aviation industry is still only at the very beginning of a long and deep transformation. In this regard, the development of ancillary revenue streams takes a special place, which can both positively and negatively affect the business of full-service airlines, presenting both an opportunity and a threat at the same time. Moreover, there is a piece of strong evidence that customer centricity is one of the most important factors for such development.

Consumers in the travel industry prefer to select "one-stop shops" that are perceived to provide reasonable value for time, as well as up-to-date details and booking experience without

annoyance. As a consequence, airlines have a major obstacle in the form of competition for these sites.

In this case, the research gap could be formulated as following: recently, more and more research on ancillary airline products and services has appeared, but either old models are used, or research does not answer current questions, or they are highly localized (mainly Asian markets). The study allows us to understand what barriers affect the fact that airline customers in the Russian market do not use airline platforms enough to purchase additional products and services.

Research is to be consisted of 2 main sections: understanding transformation processes in full-service airlines and applying the customer-centric approach by using modified UTAUT2 framework that will help to reveal factors that have influence on acceptance of purchasing ancillary products and services directly though the airline platform.

Thus, many research questions to be addressed:

- What are the key factors that influence the adoption of purchasing ancillary products and services directly through the airline platforms on Russian market?
- How much of the variation in airline platforms acceptance can be explained by the selected factors?
- What recommendations could be given to managers of Russian airlines based on the results obtained?

Consequently, detailed description of research methodology and obtained results are provided in the next 2 chapters.

Chapter 2. Development of research methodology

2.1. Research design

Customer acceptance and trust are critical to the development of any products and services. In the conditions of low margins and high competition, it is especially important for airlines to know exactly how to develop offers of ancillaries and encourage passengers to purchase them. There are two main reasons for this. First, ancillary options may be perceived as positive or negative by passengers, which may affect the purchase decision and overall satisfaction. Second, airlines should understand their customers, problems or barriers that affect users' decision to use ancillary offerings as much as possible, so that they can take this into account when developing services and increase revenue from each customer, stimulating the company's margins. These questions can addressed by models and theories of technology adoption that are widely used in a variety of fields to understand and predict user behavior. To explain the user's acceptance of new technologies, existing scientific research has developed several models that introduce factors that influence the user's acceptance of such technologies. In order to choose the most appropriate model, it is necessary to present brief overview of major of them.

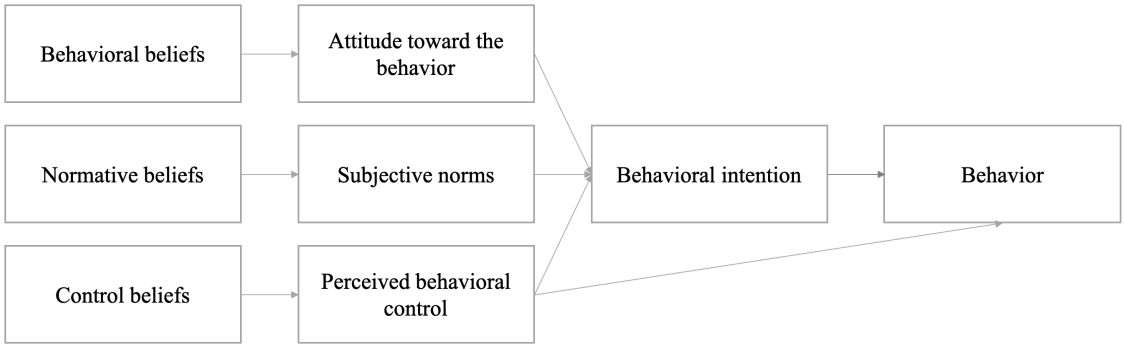
Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB)

In general, both theories, Theory of Reasoned Action and Theory of Planned Behavior, can be used in researches aimed at investigating customer intentions to use new products and services. The first theory was firstly developed for sociological and psychological study by Fishbein and Azien in 1975, and then became the foundation for analyzing the behavior of people using information systems (Taherdoost, 2017). In this framework, human actions are projected and clarified using the intention to perform the behavior, major cognitive component, which is influenced by attitude and subjective norms.

Theory of Planned Behavior was created on the basis of Theory of Reasoned Action and considered a more developed version. This theory includes an additional variable of perceived behavioral control that can influence both intention to perform the behavior and behavior itself and explains the ability to complete an action. This follows from the fact that not all behaviors are under volitional control (Ajzen, 1991). In this case individuals are more inclined to consider and use products and services when they positively evaluate this opportunity, encounter social pressure since they want to be adopters of this particular product

in their social group, and when they assume they have enough resources and reasoning to do so.

Figure 3. Theory of Planned Behavior framework



Source: Ajzen, 1991

Described model is widely used in tourism, hospitality and travel studies, since the intention is considered one of the main driver of travelers' behavior (Wang, 2016). However, Theory of Planned Behavior model has significant limitations, which does not allow to fully incorporate this framework into research's goals. First of all, it does not take into account other variables that affect motivation and behavioral intentions, such as past experience. Moreover, it does not allow to take into considerations such factors, as the benefits of the purchasing and perceived value, which is important for full-service carriers and could explain the factors driving the purchase of ancillary revenue and overall customer satisfaction.

Technology Acceptance Model (TAM)

The Technology Acceptance Model was developed on the basis of the theory of justified action, developed by Fishbein and Eisen as an extension of Theory of Planned Behavior for predicting the adoption and use of new information technologies in organizations. This theory is the most popular theory for the research on adoption of new products in contemporary science. The Davis technology adoption model operates on two main concepts: Perceived Usefulness and Perceived Ease of Use. Perceived Usefulness is a measure of the user's confidence that the technology used will increase their productivity, which shows whether the technology used corresponds to the type of activity in which it is used. In other words, a high perceived usefulness score indicates that the technology's goals match the user's

goals, and vice versa. Perceived ease of use is an indicator of the user's confidence that the use of this technology will involve the least possible effort. This model of performance evaluation is based on the concept that when creating a technology, it is important not only its effectiveness as a technical means to achieve the goal, but also its "clarity" to the user.

This model was continuously studied and expanded to TAM 2 (Venkatesh and Davis, 2000) and TAM 3 that has also been suggested in the context of growing e-Commerce market with the inclusion of trust effects and perceived risk over the use of the system (Venkatesh and Bala, 2008).

Despite the popularity of this theory, it has its drawbacks. First, this theory is taken as a basis in many scientific studies and does not bring any scientific novelty. Second, this model has been significantly improved and is therefore quite outdated. Moreover, it is worth noting that this model is initially focused on the use of organizational innovations in contact, so it is not exactly suitable for the needs of the current study.

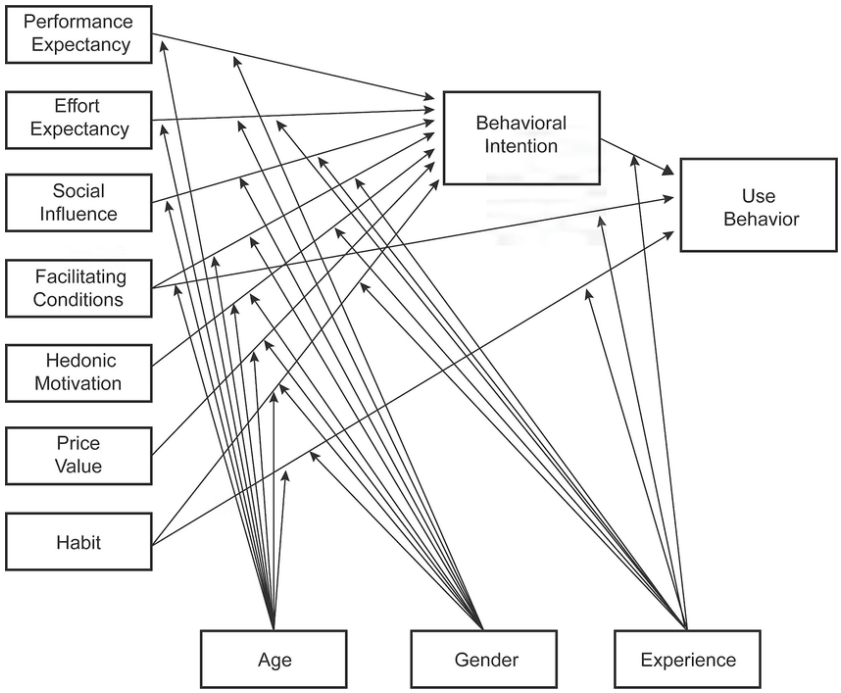
There are several other acceptance theories that have been used in similar researches, such as Motivational model by Davis, Bagozzi, and Warshaw (1992), Innovation diffusion theory (IDT) by Moore and Benbasat (1991), and Socio-cognitive theory (SCT) by Compeau and Higgins (1995). However, their applications are limited due to theoretical constructs and will not be used in this research.

Extended Unified Theory of Acceptance and Use of Technology

The chosen theoretical framework, the extended unified theory of acceptance and use of technology (UTAUT2) is widely used in modern research and aimed at explaining of the acceptance and use of information and communications technologies specifically by customers. UTAUT2 was built on the basis of combination of previous theories in this field, mainly as an extended version of UTAT, which became extremely popular within the scientific research in the field of information and communications technologies and also was applied in consumer context. Adding additional constructs such as hedonic motivation, price value, and habit it was extended to the application within the consumer context, which is totally feasible in case of this research.

UTAUT integrates elements across eight prior models and demonstrates stronger predictive power than any of the eight models.

Figure 4. UTAUT2 framework



Source: Venkatesh, 2012

Examples of UTAUT2 and UTAUT direct and modified implementations in consumer research involve the use by consumers of the following ICT: Mobile and online banking and payments (Zhou, Lu, and Wang, 2010; Riffai, Grantb, and Edgarc, 2012; Baptista and Oliveira; 2015; Merhi, Hone, and Tarhini, 2019; Alalwan, Dwivedi, and Rana, 2017; Slade, Dwivedi, Piercy, and Williams, 2015); E-commerce (Shaw and Sergueeva, 2019; An and Han, 2017) and many others.

In the field of travel this framework was also used. San Martin and Herrero (2012) explored the process of adoption of new information technologies by the users of rural tourism services and the underlying psychological factors of individuals that explain their intentions to make bookings or reservations directly through the websites of the rural accommodations (online purchase intentions) based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and added innovativeness construct. Escobar-Rodríguez and Carvajal-Trujillo (2013, 2014) explored online drivers of consumer purchase of website airline tickets and determinants of purchasing flights from low-cost carrier (LCC) websites by using UTAUT2 model. Chang (2019) explored used extended UTAUT2 model and explored factors that influence online hotel Booking.

2.2 Modification of the theoretical framework and research hypothesis

As it was stated before, the chosen framework includes 7 major constructs: performance expectancy, effort expectancy social influence, facilitating conditions, hedonic motivation, price value, and habit. Not all of them should be necessary included into the final research framework — the final set of constructs depends on the goals and specific of the research. At this stage all constructs should be analyzed whether they applicable to this particular research or not. Thus, hypothesis should be stated if constructs are applicable.

Performance expectancy

The first construct, *performance expectancy*, describes the level of benefits that consumers will receive if they accept the new technology or internet service and start to use it in order to attain particular gains. This construct is considered the strongest predictor of intention to use (Venkatesh et al., 2003). It is based on frequently used constructs from previous theories, such as perceived usefulness (varieties of Technology Acceptance Models) and relative advantage (Diffusion of Innovation Theory), and many others. The performance expectancy is highly reliable construct ad could be definitely used in this research.

Hypothesis 1: Low perceived performance of airline platforms decreases the behavioral intention to purchase ancillary products and services

Effort expectancy

Effort expectancy refers to the level of degree of easiness correlated with the usage of technologies by users. According to Sun, Lou, Chao, and Wu, users were more likely to accept and use a new technology when it not only was user-friendly but also provided an easy-to-use interface and learning guidance. In general, it shows the perception whether it is difficult to use particular service or technology or not. This construct is comparable with perceived ease-of-use of varieties of Technology Acceptance Models and the complexity in the Diffusion of Innovation Theory. Effort expectancy is fully applicable in this research.

Hypothesis 2: High perceived effort expectancy to use airline platforms decreases the behavioral intention to purchase ancillary products and services

Social Influence

Social Influence describes the level to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology or service. This construct is widely used in the modern research, since the social influence has been getting more and more important in the era of social networks and online marketing. Social Influence was used in similar travel studies: online purchasing of airline tickets, online booking of rural tourist activities, direct booking from hotel platforms, OTA's (San Martín, 2012; Carvajal-Trujillo, 2014; Chang et al, 2019; Lubis, 2019).

Hypothesis 3: Social influence can decrease the behavioral intention to purchase ancillary products and services from airline platforms

Facilitating Conditions

Facilitating Conditions refer to the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. Ajzen indicated that individual behavioral intention enhanced when he believed that he was capable of dominating the technology or resources available to him. The usage of this construct has been questionable, since it is applicable mostly within organizational context and does provide with reliable results within the consumer context (Juaneda-Ayensa, 2016). Thus, this variable will be excluded in the research model.

Hedonic Motivation

Hedonic Motivation is defined as the pleasure derived from using technology. It plays an important role in determining the adoption and use of technology. With the integration of the hedonic motivation into the research model, the goal is to supplement the UTAUT, which only takes into account the extrinsic motivation or utilitarian meaning, through the success expectation construct (Venkatesh et al., 2012). Several authors proved statistically the effect of hedonic motivation on the decision to use a technology and the actual use of that technology (Van der Heijden, 2004; Thong, 2006), which is classified as "perceived enjoyment". It strengthened in the consumer context and travel context in particular, since many travelers perceive dream, plan and booking stage considered rarely fun and enjoyable.

Hypothesis 4: Low hedonic motivation decreases the behavioral intention to purchase ancillary products and services

Price Value

Price Value is a new construct in the modified UTAUT2 model, since consumers, unlike employees, bear the monetary cost of using the new technology (Verkatesh et al., 2012). Price value in this case is defined as a compromise between consumers' perceived advantages of applications and the monetary cost of using them. A price value is positive when the benefits of using the technology are perceived to exceed monetary costs, and this price value has a positive effect on behavioral intention. Moreover, previous research included "price saving" construct, since using of new services or technologies could lead to having lower price, which is highly important in online purchasing context (Bigne et al., 2010; Jensen, 2012). Price savings or the very low prices that customers can achieve by internet shopping, along with the prospect of receiving specific advantages, reflect a more perceived advantage for the customer and this in turn contributes to enhanced intentions for online purchasing (Han and Kim, 2009; Wen, 2012). This is especially relevant for full-service airline companies when competing with Online Travel Agencies or Meta Searches platforms, which could provide customers with different price options and opportunity to choose the most cheaper one.

Hypothesis 5: Low perceived price value provided by airline platforms decreases the behavioral intention to purchase ancillary products and services

Habit

Using UTAUT2 model to empirically test consumers purchasing airline tickets online, Escobar-Rodríguez and Carvajal-Trujillo showed that habit behavior was an important factor that influenced behavioral intention of consumers purchasing airline tickets on the Internet. In order to know whether consumers would buy airline tickets online or not, behavioral intention was a better predictor than habit behavior. Chong and Ngai studied travelers using local social media on their trips and found that travelers' habit behaviors had significant impacts on their behavioral intention and use behavior. Consequently, researcher using UTAUT2 model concluded that a significant relationship can be found between habit behavior and behavioral intention. In this regard, this variable could be considered applicable.

Hypothesis 6: Absence of habit can decrease the behavioral intention to purchase ancillary products and services from ancillary platforms

Hypothesis 7: Absence of habit can decrease the actual usage of ancillary products and services from ancillary platforms

However, only chosen above constructs are not fully enough. As a result of the analysis in the first chapter, several factors that can influence the purchase of ancillary products and services through the airline platforms were identified.

Personalization

The first is personalization. In general, personalized offers help passengers customize travel journey and engage passengers in purchasing these additional services. However, the passenger's desire to purchase personalized products and services may differ at different stages of travelling. It was scientifically proved that personalization can influence different aspects of information processing and decision making (Tam and Ho, 2006; Xu et al., 2014). It was also found that personalization influence on the perceived ease of use and perceived usefulness, which in turns lead to the increasing the intention of use (Yong, 2017). In this case it is relevant to understand whether perceived level of personalization influence the behavioral intention to purchase ancillary products and services from ancillary platforms. The tested aspects of personalization included in Perceived Personalization section.

Hypothesis 8: Perceived level of personalization can decrease the behavioral intention to purchase ancillary products and services from ancillary platforms

Trust

Online shopping is still full of concerns about security and privacy issues. This problem is widely discussed in modern research mostly because of high presence in e-commerce field. In general, it could be considered in term of general perspective and security of the online transactions, which is related to the online operations. Trust may be characterized as an attitude of trust in the online danger situation that one's vulnerabilities are not exposed, consisting of assurances and promises, the unrestricted use of private details, the consistency of reimbursement policies and the risk-free nature of online transactions (Ukpabi and Karjaluoto, 2017). This topic is widely discussed in tourism research and used as a construct by several authors (Al-hawari and Mouakket, 2012; Nunkoo and Ramkisson, 2013; Escobar-Rodriguez and Carvajal-Trujillo, 2014; Kim, 2013; Amaro and Duarte, 2015). Moreover, it is particularly important for full-service airlines, since they have strong image among other travel services providers.

Hypothesis 9: Low level of trust decreases the behavioral intention to purchase ancillary products and services

Switching costs

Switching costs are widely used when it is necessary to test intention to purchase and customers change a provider of service and products (Chang et al., 2014). The increase in switching cost will directly influence the switching barriers, that in turn prevent switching and purchase behavior (Liang et al., 2014). This is highly relevant for airline companies because of opportunity to create holistic travel system for passengers and huge competition among travel services providers. In this passengers may have diverse switching intents. This is an significant topic since the process of technology adoption and switching intent consists of defining requirements, alternative recognition, contrast, and selection, leading to switching intervention (Kardes et al., 2011).

Hypothesis 10: High switching costs decrease the behavioral intention to purchase ancillary products and services from airline platforms

Behavioral Intention

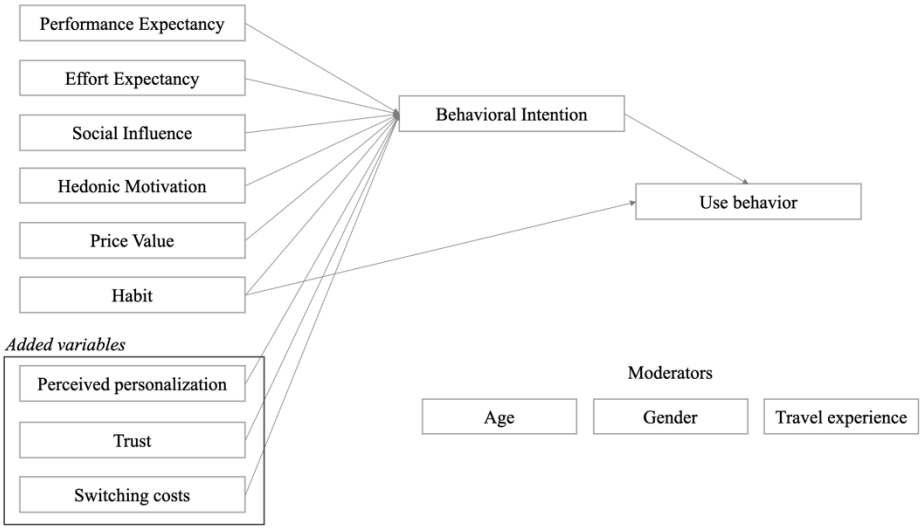
Taylor and Todd referred *behavioral intention* as perceived attitude, and use behavior as actual action. According to their study, user intention would affect how often they use technology. Past research also indicated that behavioral intention is a major determinant of use behavior. Raman and Don studied 320 pre-service teachers using learning management software, and using UTAUT2 model they found that behavioral intention was influential in determining use behavior. Also, Escobar-Rodríguez and Carvajal-Trujillo reported behavioral intention as a major determinant of use behavior in predicting whether consumers would purchase airline tickets on the Internet.

Hypothesis 11: Low purchase intention can decrease decrease the actual usage of ancillary products and services from ancillary platforms

Age, gender and travel experience play the role of moderators with subsequent stated hypotheses.

Thus the main goal of this research is to understand what are the barriers that influence the behavior intention to purchase ancillary products and services directly though the airline platforms. The proposed framework is aimed at testing supporting hypothesis.

Figure 5. Proposed framework for research



Source: developed by author

2.3 Measurement and analysis

The data is collected through a cross-sectional online-based survey, that was distributed through mix of multichannel sources, consists of both frequent and infrequent travelers (around 150-300 respondents).

A set of measurement items was collected through the analysis of previous research in the relevant field of acceptance of information and communication technologies, e-commerce, tourism and airlines. Thus, the original UTAUT2 theoretical model was adapted to the specific context of this research based of these findings. In this regard, 38 items were obtained within 11 main construct. Consequently, the performance expectancy consists of 9 items (Venkatesh et al., 2012; Rodríguez, E. Carvajal-Trujillo, 2014; Oliver Wyman, 2016). The effort expectancy, Social Influence, Hedonic Motivation are composed of 3 items each (Venkatesh et al., 2012). Habit consists of 2 items (Venkatesh et al., 2012; Emma Juaneda-Ayensa et al., 2016). Personalization is measured by 4 items (Yong et al., 2017; Wang et al., 2017). Price value consists of 4 items (Venkatesh et al., 2012; Rodríguez, E. Carvajal-Trujillo, 2014). Trust

is measured by 4 items (Rodríguez, E. Carvajal-Trujillo, 2014). Switching costs construct is composed of also 4 items (Oliver Wyman, 2016; Chulkov, 2017). Behavioral Intention and Use Behavior are measured by 3 and 1 items, respectively (Venkatesh et al., 2012; Rodríguez, E. Carvajal-Trujillo, 2014). All these constructs were validated for the relevance by 4 industry experts that had relevant work background and participated in projects related to ancillary products and services.

The section of the survey will be based on dependency between general group of factors and will be researched by using a seven-point Likert scale to collect data on respondents' level of agreement with the measurement items (1 — strongly disagree, 2 — disagree, 3 — somewhat disagree, 4 —— neither agree or disagree, 5 — somewhat agree, 6 — agree, 7 — strongly disagree). The using of seven-point Likert scale is proposed by author of the theoretical framework, Venkatesh.

Statistical methods, such as a Confirmatory Factor Analysis based on PLS-SEM method will be conducted in order to understand the type of relationship between transformational changes, technology acceptance, service quality, perceived value and customer satisfaction. Confirmatory Factor Analysis will be conducted in order to test preconceived theoretical idea about the factor structure and will be run by using WARP PLS 7.0 software.

For the analysis, the selected PLS-SEM model was chosen, which is a model of structural equations. It includes confirmatory factor analysis, confirmatory composite analysis, path analysis, partial least squares path modeling, and latent growth modeling. The model defines latent variables using one or more observable variables, and a structural model that imputes relationships between latent variables. The use of SEM is usually justified in the social and economic research, since it allows researchers to impute relationships between unobservable constructs (latent variables) from observable variables.

The analysis of the collected data was performed using the WarpPLS 7.0 program, which was developed on the basis of the widely used MATLAB package. WarpPLS 7.0 is a unique software, since it provides the ability to analyze extended list of features, which are not available in other statistical tools (Kock, 2020). It is used for PLS-SEM analysis, which helps to better explain factors and is recommended for use in similar theoretical models.

Thus, as a result, it is planned to obtain several main and most important areas that will be considered in detail when creating an integrated methodical system for transformation of full-service airline operations. The creation of a comprehensive methodical recommendation

for full-service airlines in terms of ancillary revenue will assess current main stream of changes such as customer-centricity that will allow companies to understand the approach to the transformation of airline operating models in this field.

The research is of scientific and practical use. From the point of view of science, this is important, because the theoretical concepts will be adjusted and improved through the use of practical knowledge — obtained from perspective of end users.

Chapter 3. Empirical study results

3.1 Sample and descriptive statistics

As a result of the distribution of the survey through Survey Monkey platform, more than 293 responses were collected. Despite this, about 30% of respondents did not complete it, so their opinions were not taken into account in the analysis process. The entire sample was analyzed and checked for adequacy. Some of the answers were deleted because the answers were not consistent or contained only "I can not answer" in the second part. As a result of data cleaning, the final sample was 204 people, which is representative and sufficient according to the calculation in the software (The required sample size is no less than 146 according to the Kock, 2020). The survey was distributed in the social network Vkontakte among residents of major cities of Russia, as well as in interest groups. Groups were also used to communicate in the Telegram messenger.

The survey was completed by 54.27% of women and 46.94% of men, which corresponds to an almost equal distribution by gender. To achieve gender representation, the survey was additionally sent to the male population.

According to the age distribution, the survey was completed by approximately 33% of the population aged 18 to 25 years, 31% aged 26 to 35 years, 27% aged 36 to 50 years, and 10% aged 50 years or more. There should be several comments. First of all, there were no respondents under the age of 18, which is absolutely natural, since they are not solvent and are in the care of family. Moreover, the high proportion of young travelers can be explained by the fact that Russian residents mostly travel at a young age. Thus, according to a 2017 study, more than half of Russian tourists are under the age of 35. Also, generally the older generation does not buy and choose tickets on their own and often relies on the help of younger relatives.

Table 3. Descriptive statistics means

Factor	Mean
Performance expectancy	4.134454
Price value	3.672269
Effort expectancy	3.865546
Perceived personalization	3.415966

Hedonic motivation	3.389356
Switching costs	3.92437
Social Influence	3.338936
Trust	4.526611
Habit	3.021008
Behavioral intention	2.781513

Source: obtained from WarpPLS 7.0

As it was expected, mean values of factors are significantly low. In general, respondents rarely buy ancillary products and services on airline platforms (2.9 out of 7, where 1 - never buy, 7 - buy a variety of ancillary products and services on airline platforms, when purchasing tickets).

Most of all, respondents trust the quality of products and services provided by airlines and their partners. In this regard, almost all respondents agreed with this statement (4.52). At the same time, respondents are less likely to agree that if there are problems in the process of searching, ordering and using additional services, I am sure that the airlines will help me solve them. Also, respondents mostly find it difficult to answer whether they believe in the security of transactions when purchasing additional products or services through the airline platforms. This factor may be due to the general lack of confidence in online purchasing process.

Respondents are least likely to agree with statements about habits and behavioral intentions to buy additional products and services in the future (3.02 and 2.78), respectively. Respondents rarely use airline platforms to search for and purchase additional products and services, this process is not familiar to them.

The respondents also do not agree that airlines provide them with personalized approach (3.42). Moreover, it is often unclear and not exciting to use the platforms (3.87).

Respondents do not believe that they are getting the best value for money, can save money by purchasing additional products and services on airline platforms, and cannot clearly answer whether airlines generally offer cheaper offers of additional products and services than other services.

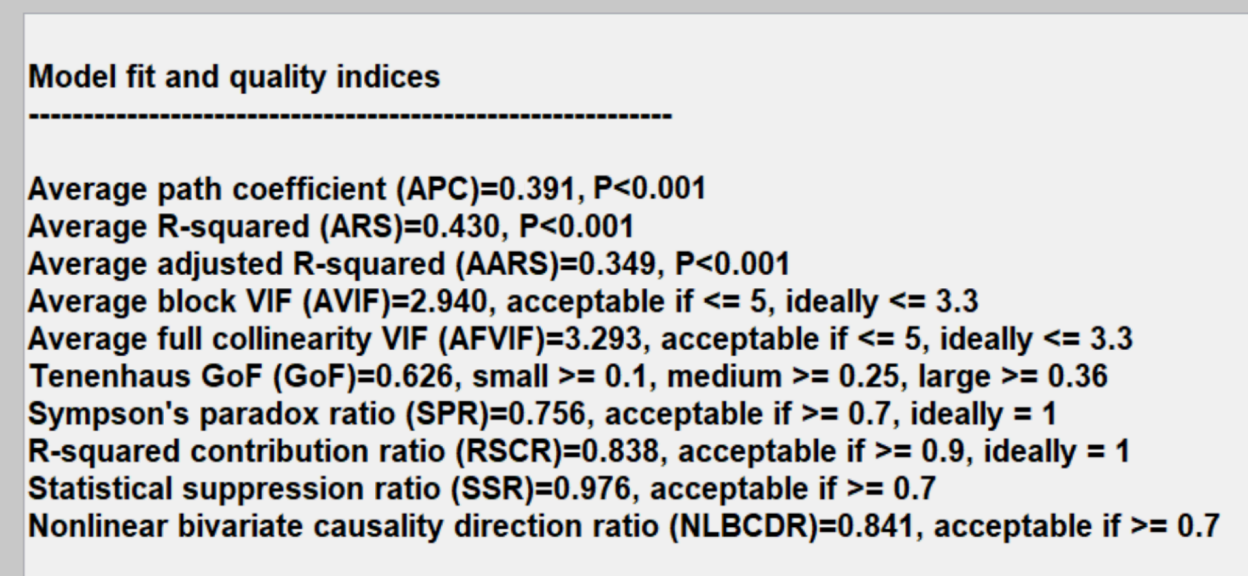
As for other factors, such as Switching costs (3.92) and Social Influence (3.34), respondents are more likely to disagree that these factors have an impact on them.

3.2 Confirmatory factor analysis

General SEM analysis includes checking 10 model fit and quality indicators, that are used globally. According to Kock (2020), such indicies include: average path coefficient (APC), average R-squared (ARS), average adjusted R-squared (AARS), average block variance inflation factor (AVIF), average full collinearity VIF (AFVIF), Tenenhaus GoF (GoF), Simpson's paradox ratio (SPR), R-squared contribution ratio (RSCR), statistical suppression ratio (SSR), and nonlinear bivariate causality direction ratio (NLBCDR).

Almost all model fit and quality indicators are within the accepted values. However the value of R-squared contribution ratio is slightly below the recommended level (0.838). Nevertheless, the model could be accepted, since 9 of 10 indicators are within the accepted values. The whole description of results are provided below.

Figure 6. Model fit and quality indicies results



Source: obtained from WarpPLS 7.0

The quality of model was also check in terms of reliability. For these goals composite reliability and Cronbach's alpha coefficients are used. Both the composite reliability and the Cronbach's alpha coefficients should be equal to or greater than 0.7 (Kock, 2020).

Regarding this model almost all variables are equal to or greater that 0,7, which could be considered a great result. However, only Cronbach's alpha for latent "Trust" variable equals 0,608. But it is quite close to the 0,7, so in general this factor could be accepted.

Table 4. Reliability and validity testing

	Composite reliability	Cronbach's alpha	Avg. Variance extracted	Full.collin. VIF
PE	0.902	0.877	0.507	2.548
PV	0.833	0.724	0.576	3.456
EE	0.932	0.891	0.821	2.633
PER	0.862	0.785	0.610	2.671
HM	0.926	0.880	0.807	2.190
SC	0.817	0.700	0.532	1.664
SI	0.961	0.939	0.891	3.009
Trust	0.794	0.608	0.582	2.169
H	0.946	0.886	0.897	4.842
BI	0.925	0.878	0.804	4.294

Source: WarpPLS 7.0 analysis results

In terms of validity and collinearity of factors, average variances extracted (AVEs) and full collinearity variance inflation factors (VIFs) indicators are used. For convergent validity assessment, the AVE threshold frequently recommended for acceptable validity is 0.5 (Kock, 2020) In this model all AVE's are higher than 0,5. Thus, all the variables could be accepted from the perspective of convergent validity assessment.

Also, it is necessary to check the convergent validity by analyzing the loadings of all factors within the model and p-value. Factors loadings are recommended to be equal or higher than 0.5, when p-value traditionally should be lower than 0.05 within the chosen confident interval. Consequently, two factors should be excluded from the model, since their values deviate from the norm (PV 4 and TRU 1). These factors are not appropriate for the model and will not be considered in further analysis. The detailed results obtained from the analysis of factor loadings are presented below.

Table 5. Factor loading for tested factors

Factors	Items	Statement	Loadings	p-value
PE	PE1	Using the platforms of Russian airlines to purchase additional products and services for travel is very useful when planning a trip	(0.735)	<0.001
	PE2	Using the platforms of Russian airlines to purchase additional products and services for travel allows me to plan my trip more effectively	(0.737)	<0.001
	PE3	Using the platforms of Russian airlines to purchase additional products and services for travel allows me to plan my trip more effectively	(0.744)	<0.001
	PE4	Using the platforms of Russian airlines to purchase additional products and services for travel allows me to save time on searching for and purchasing such products and services	(0.817)	<0.001
	PE5	Using the platforms of Russian airlines to purchase additional products and services for travel provides a wide range of such products and services	(0.578)	<0.001
	PE6	Using the platforms of Russian airlines to purchase additional products and services for travel allows you to buy products and services from different partner brands	(0.702)	<0.001
	PE7	Using the platforms of Russian airlines to purchase additional products and services for travel allows you to buy exclusive products and services	(0.738)	<0.001
	PE8	Using the platforms of Russian airlines to purchase additional products and services for travel allows you to flexibly approach the purchase of such products and services	(0.718)	<0.001

	PE9	Using the platforms of Russian airlines to purchase additional products and services for travel allows you to customize your trip	(0.611)	<0.001
PV	PV1	I can save money by purchasing additional products and services on airline platforms	(0.828)	<0.001
	PV2	Airline platforms generally offer cheaper offers of additional products and services than other services (for example, booking.com / aviasales.ru / websites of hotels, insurance companies, and many others)	(0.845)	<0.001
	PV3	Airline platforms offer the best value for money for additional products and services	(0.887)	<0.001
	PV4	I can get additional benefits from purchasing additional products and services, such as earning points or miles in loyalty programs	(0.345)	<0.001
EE	EE1	Use the airline platforms to search for and purchase additional products and services for travel is clear	(0.888)	<0.001
	EE2	It is easy to use airline platforms to search for and purchase additional travel products and services	(0.941)	<0.001
	EE3	It is convenient to use the airline platforms to search for and purchase additional products and services for travel	(0.889)	<0.001
PER	PER1	Airlines offer me additional products and services that I often use	(0.775)	<0.001
	PER2	Airlines offer me additional products and services that meet my needs and requirements	(0.848)	<0.001
	PER3	Airlines offer me additional products and services that are individual and intended only for me	(0.763)	<0.001

	PER4	Airlines offer me additional products and services at individual prices that are lower than other services	(0.732)	<0.001
HM	HM1	Using airline platforms to search for and purchase additional travel products and services is fun	(0.891)	<0.001
	HM2	Using airline platforms to search for and purchase additional products and services for travel is a pleasure	(0.882)	<0.001
	HM3	Using airline platforms to search for and purchase additional travel products and services is exciting	(0.885)	<0.001
SC	SC1	I will not be able to use products and services that I like	(0.566)	<0.001
	SC2	I will lose the benefits and bonuses of other services ' loyalty programs	(0.683)	<0.001
	SC3	It will be inconvenient and troublesome	(0.830)	<0.001
	SC4	The cost of time and effort will be high	(0.808)	<0.001
SI	SI1	People who are important to me believe that I should use airline platforms to search for and purchase additional products and services for travel	(0.937)	<0.001
	SI2	People who influence my behavior believe that I should use airline platforms to search for and purchase additional products and services for travel	(0.935)	<0.001
	SI3	People whose opinions I value prefer that I use airline platforms to search for and purchase additional travel products and services	(0.961)	<0.001
Trust	TRU1	If there are problems in the process of searching, ordering and using additional services, I am sure that the airlines will help me resolve them	(0.891)	0.059

	TRU2	I believe in the quality of products and services provided by airlines and their partners	(0.871)	<0.001
	TRU3	I believe in the quality of products and services provided by airlines and their partners	(0.438)	<0.001
H	H1	Using airline platforms to search for and purchase additional products and services has become familiar to me	(0.947)	<0.001
	H2	I often use the airline's platforms to search for and purchase additional products and services	(0.946)	<0.001
BI	BI	I intend to use airline platforms to purchase additional services and products in the future	(0.875)	<0.001
	BI2	I will always try to use the airline platforms to purchase additional services and products	(0.902)	<0.001
	BI3	I plan to frequently use the platform of the airlines to purchase additional services and products	(0.912)	<0.001

Source: WarpPLS 7.0 analysis results

As it can be seen from the results, the confirmatory analysis, in general, has proved and confirmed all latent factors variables that are used in the model. The model also can be considered valid and reliable.

In order to understand which hypothesis can be supported and accepted it is necessary to analyze paths of latent variables': p-value, path coefficients, effect size for path coefficients. Moreover, no dependencies were found within the factors-moderators. The conducted analysis allows to support several hypothesis, which have p-value that equals or less than 0.05, which are presented below and small and medium effect size for path coefficients:

- Low perceived performance of airline platforms decreases the behavioral intention to purchase ancillary products and services;
- Low perceived price value provided by airline platforms decreases the behavioral intention to purchase ancillary products and services;
- Perceived level of personalization can decrease the behavioral intention to purchase ancillary products and services from ancillary platforms;

- Habit of the purchasing from ancillary platforms increases the behavioral intention to purchase ancillary products and services;
- Habit of the purchasing from ancillary platforms increases the actual usage of such platforms;
- The low behavioral intention decreases the actual usage of such platforms.

The detailed description is provided below.

Table 6. Analyze paths of latent variables' results

Path	Hypothesis	p-value	Path coefficients	Effect size for path coefficients	Result
PE, BI	Low perceived performance of airline platforms decreases the behavioral intention to purchase ancillary products and services	0.013	0.122	0.068 (small)	Supported
PV, BI	Low perceived price value provided by airline platforms decreases the behavioral intention to purchase ancillary products and services	0,020	0.181	0.162 (medium)	Supported
EE, BI	High perceived effort expectancy to use airline platforms decreases the behavioral intention to purchase ancillary products and services	0.124	0.103	0.048	Not supported
PER, BI	Perceived level of personalization can decrease the behavioral	0.038	0.128	0.012 (small)	Supported

	intention to purchase ancillary products and services from ancillary platforms				
HM, BI	Low hedonic motivation decreases the behavioral intention to purchase ancillary products and services	0.475	-0.006	0.002	Not supported
SC, BI	High switching costs decrease the behavioral intention to purchase ancillary products and services from airline platforms	0.480	-0.005	0.001	Not supported
SI, BI	Social influence can decrease the behavioral intention to purchase ancillary products and services from airline platforms	0.123	0.103	0.066	Not supported
Trust, BI	Low level of trust decreases the behavioral intention to purchase ancillary products and services	0.184	0.080	0.028	Not supported
H, BI	Habit of the purchasing from ancillary platforms increases the behavioral intention to purchase ancillary products and services	<0.001	0.350	0.266 (medium)	Supported

H, AU	Habit of the purchasing from ancillary platforms increases the actual usage of such platforms	0.001	0.267	0.093(small)	Supported
BI, AU	The low behavioral intention decreases the actual usage of such platforms	0.047	0.086	0.024 (small)	Supported

Source: WarpPLS 7.0 analysis results

3.3 Discussion of the results

Thus, it can be stated that several factors could be both the barriers and contributors for the adoption of airline platforms when purchasing ancillary products and services. These factors are the following: perceived performance expectancy; perceived price value; perceived level of personalization; habit when it comes to behavioral intention.

The perceived performance expectancy is described by 9 factors, than more or less equal in terms of importance. These factors explain 71% of the variation in airline platforms acceptance. When it comes to actual usage, the chosen factors only explain 18% of the variance, which means that next researches should take into considerations other possible barriers. This could be explained by the complication of measurement of actual usage and distorted perception of passengers.

The most influential factor in this case is passengers' perception of saving time on searching for and purchasing such products and services, when using airline platforms (for PE4 factor loading equals 0.817. The least important one is PE5 with the factor loading equals 0.578.

Perceived price value is described by three accepted factors such as can saving money by saving money when purchasing additional products and services on airline platforms, offering comparatively cheaper prices and providing passengers with best value for money. Factors loadings of these factors almost high and equal approximately to 0.9, which is considered high. So all three streams should be taken into consideration when making decisions.

Perceived level of personalization is described by 4 factors: often used products and services, meeting needs and requirements of passengers, tailored offers for each passenger and individual pricing when it comes to the price strategy. In this case the most influential factor is meeting needs and requirements with the factor loading equals 0.848. Currently almost 85% of respondents disagrees that they somehow get such products and services.

Special attention should be paid in terms of habit. Both factors are important for conclusions, since their factor loadings are extremely high (approximately 0.950). Almost all respondents stated that they did not have such habit, which could be potentially explained by using other services and third-party platforms when it comes to purchasing ancillary products and services.

In general, most findings are consistent with previous research regarding online purchasing drivers in travel field, especially within performance expectance and habit (San Martín, 2012; Carvajal-Trujillo, 2014; Chang et al, 2019; Lubis, 2019*)*. Several finding are unexpectable, for example those are related to Hedonic Motivation.

Conclusion

Thus, a comprehensive study was conducted in order to understand the barriers that prevent the purchasing of ancillary products and services through platforms of Russian airline companies. The model can be considered reliable and valid. It is described by 9 factors, that explain 71% of the variation in airline platforms acceptance. When it comes to actual usage, the chosen factors explain only 18% of the variance, which means that next researches should take into considerations other possible barriers. Empirical research has shown that several hypotheses have been rejected. However, factors such as perceived performance expectation; perceived price value; perceived level of personalization; and habit when it comes to behavioral intention were considered significant and the hypotheses were confirmed.

Key zones were identified and according to the analysis of best practices several potential recommendations could be applied. Within perceived performance expectations, managers should include in development following points:

- Developers and marketers should lay emphasis on providing effective, useful and reliable information which would further lead to increasing acceptance of airline platforms among the travelers;
- Marketers should focus on creating awareness of the utility and potential of airline platforms for the whole travel stages, so that more and more travelers would adopt the using of such platforms;
- Facilitating travelers in the inspiration and planning phase and better positioning at the dreaming, planning and booking phase;
- Diversifying and extending the list of partners and products in all segments for creation flexible and customizing experience.

In terms of perceived level of personalization and price value there is an opportunity to develop tailored pricing offers, dynamic packaging, displaying the benefits of purchasing on airline platforms and saved money, better integration with loyalty programs. Developing of data analytics capabilities for better understanding of customers, implementation of AI&ML mechanisms for match customers' demand and wishes also would be helpful. All these actions should be applied by deep engaging passengers into the process of mobile purchasing on all travel stages, even before and after the journey, which potentially can help to develop habits. Moreover, for habit development it is important to:

- Improving UX/UI experience of passengers and including of gamification elements;
- Formulating constant marketing communication strategies that create habit of ancillaries purchasing intention and, thus, achieving greater online purchasing intentions by individuals, and therefore generating an online purchasing behavior;
- Platforms should offer incentives for encouraging consumers to repurchase ancillaries;
- Developing direct traffic to the platforms and more qualified leads.

This research has its limitations, and further researches should take them into account. First of all, collected sample includes mainly opinions of young population aged from 18 to 35 years old from central regions of Russia. Moreover, the research has shed light on the general acceptance and perception of the ancillary products and services, not evaluating specific streams, such as unbundled products; commission-based products and frequent flyer programs. Further research can be focused on the deeper understanding of personalization and customer satisfaction & loyalty issues.

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Appendix 1. Online survey

Большое спасибо, что вы здесь и согласились принять участие в исследовании, посвященном дополнительным продуктам и услугам для путешествия :)

Что такое дополнительные продукты и услуги? Как правило, это все, что может понадобиться вам в путешествии: комфорт полета (например, багаж, питание, повышение класса или даже шоппинг на борту), отели и другие варианты жилья, услуги трансфера и аренда автомобиля, страховые продукты и многое другое

Многие российские авиакомпании позволяют напрямую бронировать их на своих платформах, однако, часто путешественники предпочитают использовать другие сервисы. Ваше мнение позволит мне выяснить потенциальные причины и, возможно, улучшит опыт взаимодействия с авиакомпаниями в будущем

Все ответы полностью анонимны, собранные данные будут использованы лишь в агрегированном виде. Время заполнения — 5-7 минут

Общие вопросы на опыт путешествий:

Хотя бы раз я самостоятельно выбирал авиабилеты и видел предложения о дополнительных продуктах и услугах на платформах авиакомпаний (filtering question)

Покупали ли вы когда-нибудь напрямую на платформах авиакомпаний?

- Да
- Нет

Какую платформу авиакомпаний вы чаще всего используете при покупке билетов и дополнительных продуктов и услуг?

- Веб-сайт, использую компьютер

- Веб-сайт, использую мобильный телефон или планшет
- Мобильное приложение авиакомпании
- Другое
- Я не покупал (а)

Какие дополнительные продукты и услуги вы покупали для вашего путешествия на платформах авиакомпании?

- Услуги для повышения комфорта в полете (например, выбор места, питание, апгрейд класса или другие услуги)
- Отели и другие варианты жилья
- Аренда автомобиля
- Услуги трансфера
- Страховые продукты
- Прочие продукты и услуги (укажите какие)
- Я не покупал (а)

На каких этапах планирования авиапутешествия вам интересно получать персонализированные предложения дополнительных услуг или сервисов?

- Мне интересно получать персонализированные предложения даже, когда я еще не запланировал свое путешествие
- Мне интересно получать персонализированные предложения на этапе планирования путешествия
- Мне интересно получать персонализированные предложения на этапе самого путешествия
- После путешествия (например

Являетесь ли вы участником программ лояльности авиакомпаний?

- Да
- Нет

Количество авиапутешествий в среднем в год (туда и обратно)

- Меньше 1
- 1-2
- 3-4
- 5-9
- 10 или больше

Основная цель авиапутешествий

- Отдых
- Рабочие командировки
- В гости к друзьям или родственникам
- Прочее

Основной блок вопросов

Вопросы на русском языке, будет использована семибалльная шкала Лайкерта (1 – полностью не согласен, 7 – полностью согласен)

Construct	Items	Statement	Supporting literature
Performance expectancy (PE)	PE1	Является очень полезным при планировании поездки	Venkatesh et al. (2012); Rodríguez, E. Carvajal-Trujillo (2014); Adapted from Oliver Wyman (2016)
	PE2	Позволяет мне спланировать поездку более эффективно	
	PE3	Позволяет мне экономить время на поиск и покупку таких продуктов и услуг	
	PE4	Предоставляет широкий выбор таких продуктов и услуг	
	PE5	Позволяет купить продукты и услуги от разных брендов-партнеров	
	PE6	Позволяет купить эксклюзивные продукты и услуги	

	PE7	Позволяет гибко подойти к покупке таких продуктов и услуг	
	PE8	Позволяет кастомизировать путешествие	
	PE9	Позволяет купить дополнительные услуги и сервисы без необходимости использования других сервисов	
Personalization	PER1	Платформы авиакомпаний предлагают мне дополнительные услуги и продукты, которыми я часто пользуюсь	Yong et al. (2017); Wang et al. (2017)
	PER2	Платформы авиакомпаний предлагают мне дополнительные услуги или продукты, которые отвечают моим потребностям и запросам	
	PER3	Платформы авиакомпаний предлагают мне индивидуальные дополнительные услуги или продукты, предназначенные только для меня	
	PER4	Благодаря индивидуальным предложениям от авиакомпаний покупка дополнительных продуктов и услуг обходится мне дешевле	
Effort expectancy (EE)	EE1	Мне понятно, как использовать платформы авиакомпаний для поиска и покупки дополнительных продуктов и услуг для путешествия	Venkatesh et al. (2012)

	EE2	Мне легко использовать платформы авиакомпаний для поиска и покупки дополнительных продуктов и сервисов для путешествия	
	EE3	Мне удобно использовать платформы авиакомпаний для поиска и покупки дополнительных продуктов и сервисов для путешествия	
Social influence (SI)	SI1	Люди, которые важны для меня, считают, что я должен использовать платформы авиакомпаний для поиска и покупки дополнительных продуктов и сервисов для путешествия	Venkatesh et al. (2012)
	SI2	Люди, которые влияют на мое поведение, считают, что я должен использовать платформы авиакомпаний для поиска и покупки дополнительных продуктов и сервисов для путешествия	
	SI3	Люди, чье мнение я ценю, предпочитают, чтобы я использовал платформы авиакомпаний для поиска и покупки дополнительных продуктов и сервисов для путешествия	
	HM1	Пользоваться платформами авиакомпаний весело	Venkatesh et al. (2012)

Hedonic Motivation (HM)	HM2	Пользоваться платформами авиакомпаний приятно	
	HM3	Пользоваться платформами авиакомпаний увлекательно	
Price value (PV)	PV1	Я могу сэкономить деньги, покупая дополнительные продукты и услуги на платформах авиакомпаний	Venkatesh et al. (2012); Rodríguez, E. Carvajal-Trujillo (2014)
	PV2	Платформы авиакомпаний в целом предлагают более дешевые предложения дополнительных продуктов и услуг, чем другие сервисы (например, booking.com / aviasales.ru / сайты отелей, страховых компаний и многие другие)	
	PV3	Платформы авиакомпании предлагают лучшее соотношение цены и качества для дополнительных продуктов и услуг	
	PV4	Я могу получить дополнительную пользу от покупки дополнительных продуктов и услуг, например начисление баллов или миль в программах лояльности	
Habit (H)	H1	Использование платформ авиакомпаний для поиска и покупки дополнительных продуктов и услуг стало для меня привычным	Venkatesh et al. (2012); Emma Juaneda-Ayensa et al. (2016)

	H2	Я часто использую платформы авиакомпании для поиска и покупки дополнительных продуктов и услуг	
Switching costs (SC)	SC1	Если вы будете покупать дополнительные продукты и услуги для путешествий через платформы авиакомпаний, я не смогу воспользоваться продуктами и услугами сервисов, которые мне нравятся	Adapted from Oliver Wyman (2016), Chulkov (2017)
	SC2	Я потеряю преимущества и бонусы программ лояльности других сервисов	
	SC3	Это будет неудобно и хлопотно	
	SC4	Затраты времени и усилий будут высоки	
Trust (Trust)	TRU1	Если в процессе поиска, заказа и использования дополнительных услуг возникнут проблемы, я уверен, что авиакомпании помогут мне их разрешить	Rodríguez, E. Carvajal-Trujillo (2014)
	TRU2	Я верю в качество продуктов и сервисов, предоставляемых авиакомпаниями и их партнерами	
	TRU3	Я верю в безопасность транзакций при покупке дополнительных продуктов или услуг через платформы авиакомпаний	
Behavioral Intention (BI)	BI1	Я намерен использовать платформы авиакомпаний для	Venkatesh et al. (2012);

		покупки дополнительных услуг и продуктов в будущем	Rodríguez, E. Carvajal-Trujillo (2014)
	BI2	Я всегда буду стараться использовать платформы авиакомпаний для покупки дополнительных услуг и продуктов	
	BI3	Я планирую часто использовать платформы авиакомпаний для покупки дополнительных услуг и продуктов	
Use behavior (AU)	AU	Как часто вы используете платформы авиакомпаний для покупки дополнительных услуг и продуктов?	Venkatesh et al. (2012); Rodríguez, E. Carvajal-Trujillo (2014)

Демографические характеристики

- Пол
- Возраст
- Город постоянного проживания
- Занятость
- Доход